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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

RIGIDITY OF MATERNAL SOFT PARTS DURING LABOR.*

By J. J. MULHERON, M. D., DETROIT, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

In the beneficent plan of nature the birth of the child is facilitated by the relaxation and lubrication of the soft parts which for nine months have contained, protected and nourished the developing fetus. Such relaxation and lubrication are the rule during the parturient process, but to this rule, as to rules in general, there are exceptions, and it is to these that I would direct attention.

When in an individual case the rule is not operative we have the complication known as rigidity, with its concomitant threatening of the integrity of the outlets of the uterus and vagina, respectively, as labor progresses. The condition at once aggravates the suffering of the woman, increases the danger to the child, taxes the patience and skill of the accoucheur, and jeopardizes the subsequent well-being of the mother. The importance of the complications, from a practical standpoint, is thus obvious. Dilatation of the os is a combined active and passive act—active in so far as it is due to the contractions of the longitudinal fibres of the body in retracting the circular fibres of the cervix to which they are attached, and passive in so far as the constricting muscles of the cervix are opened through the pressure of the amniotic sac and the presenting part of the child. A proper conception of this physiology of the first stage of labor is of the greatest importance.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

A proper understanding of the treatment of rigidity, as it may occur at different parts of the parturient canal, presupposes a correct conception of the underlying conditions, for it must be remembered that the essential cause differs with the seat of its manifestation. Rigidity of the os uteri, for instance, is fundamentally a very different matter from rigidity of the perineum, and the principles of treatment in each bear no similarity. Following the usual nosology we recognize three varieties of the former, namely, the anatomical, the pathological and the spasmodic.

The anatomical variety is characterized by what seems to be an hypertrophy of the transverse fibres of the cervix, which causes them to offer undue resistance to the action of the longitudinal fibres of the body of the uterus. The condition is most frequently met in aged primiparæ, although it may also complicate the first labor of very young women. My observation of it has been restricted to the former. Digital touch in such cases conveys an impression of inelasticity which has been variously likened by different writers to a mass of gutta-percha, to leather soaked in grease, et cetera. The condition persists in spite of powerful uterine contractions, which fact differentiates it from the common thickening of the cervix which may exist prior to the onset of labor, or which continues because of insufficient contractions of the longitudinal fibres.

The so-called pathological variety of rigidity is that produced by cicatrices, cystic or fibroid growths, or malignant deposits. It is most frequently encountered in multiparæ as the immediate or remote result of lacerations which have united by granulation. Scar tissue is in itself unyielding, and if existing in the cervix uteri is peculiarly prone to determine malignant degeneration at its site. This form of rigidity may, however, be also found in primiparæ, although, thanks to an advanced gynecology, instances of it are now very rare. A quarter of a century ago when the lunar caustic treatment had the sanction of the leading authorities for "ulcers of the womb," of which we heard so much in the good old days and echoes of which are still occasionally heard, deposits of zones of cicatricial tissue were not uncommon even in primiparæ. I believe we have also in sexual abuse a not uncommon cause of pathological rigidity of the cervix. I recall at least two primiparæ whose cervices were undilatable through this cause. Sexual abuse is not confined to over-indulgence of the imperious passion. It comprises also the multitudinous paraphernalia of the brothel, which are unblushingly employed in so-called Christian homes to prevent the legitimate results of sexual congress. Is it at all to be wondered at, in view of our knowledge of these practices, that the sensitive erectile tissue of the cervix uteri should pay the penalty in some form of degeneration?

The wonder rather is that this tissue escapes appreciable change as largely as it does, for nature is very exacting in the enforcement of the penalties attached to the violation of her laws. In the two cases of this pathological rigidity which I noticed as occurring in primiparæ the women had, by means of the practices referred to, escaped conception for four and six years, respectively, of their married lives. It would be interesting to know how much the criminal unloading of the impregnated uterus has to do with the causation of pathological deposits in the cervix.

Spasmodic rigidity of the cervix is, probably, the most frequent variety. It is not associated with appreciable structural change, and is, therefore, regarded as a functional disorder—a form of perverted uterine action, a reflex spasm. It may occur at any time during labor and is always an extremely annoying complication. Its onset is usually sudden in so far as my observation, at least, goes. Everything in the first stage, for instance, is progressing as nicely as could be desired, the parts being soft and well-nourished and the woman bearing her pains with cheerful fortitude. With the next pain the woman, heretofore so docile, shows signs of unwonted uneasiness and irritability, and for the first time the cry, "Oh, doctor, I can never stand this," is heard—a cry which, with its tedious reiteration, so often taxes the patience and at times even the temper of the accoucheur. Perhaps, too, there develops a frequent rectal and vesical tenesmus and, possibly, a cramp in an extremity. The examining finger now introduced into the vulva causes unusual discomfort, amounting even to pain, and its tip reaching the os reveals a change there. The vagina is probably drier than it was a short time before and feels hot. The circumference of the os uteri which was at first thick, soft and dilatable, is now thin, tense and unyielding. Between the pains this condition remains unchanged, and the fulling and softening of the cervix which characterizes normal labor is no longer observed. The wiry or whipcord margin of the os has been fitly likened to that of the unruptured hymen. If the waters have not escaped the membranes protrude as a firm elastic ball, giving the sensation to the finger of a small toy balloon, the equator of which has been constricted by a tightly drawn ligature. If the membranes have been ruptured the constriction of the cervix prevents the engagement of the head at the superior strait. The cervical ring is usually found to be displaced, usually to the left or far backward, making it difficult to reach with the finger. The anterior wall of the cervix is distended and so closely adapted to the child's head as to give the impression that the latter is uncovered. A grave error in diagnosis is recorded of an experienced obstetrician who applied the forceps in such a case and caused a fatal injury to the uterus. It may seem incredible that such an error should be made, but what has happened may happen again, and the possibility of such a mistake should not be overlooked.

It is self-evident that the rigidity of the os must give way before the child can emerge, and it is equally self-evident that this giving way must be either through spontaneous relaxation or through forcible rupture. The object of treatment is to promote the former and to forestall the latter, and herein is manifest the supreme importance of a correct diagnosis.

In the case of anatomical rigidity a masterly inactivity on the part of the accoucheur is all that is required. To be thus inactive, however, is no such easy matter. It presupposes for the accoucheur the absolute confidence of his patient and her immediate friends. There are few situations in which the physician finds himself in which his diagnostic acumen, combined with his personality, counts for so much. The woman who has been in labor for say twenty-four hours very naturally wonders why something is not being done for her. When sure of his diagnosis the accoucheur will rarely fail to allay anxiety and inspire confidence. He knows that the contraction of the longitudinal fibres of the body of the uterus will eventually overcome the undue contractility of the transverse fibres of the neck, and that in the meantime the child is not in jeopardy. A hypodermic of morphine occasionally administered will make the woman's sufferings tolerable. Meddlesome midwifery, in the form of attempted dilatation with the fingers, perpetrates some of its worst work in this form of rigidity. The hot sitz bath and the hot vaginal douche are excellent placeboes only. They exert no influence, but they are less harmful than chloral which, given per os, while being useless in this nonspasmodic rigidity, is positively noxious to both mother and child, and particularly, perhaps, to the latter. Barnes' dilators may be employed with advantage in this form of rigidity.

In the treatment of pathological rigidity of the os the means employed must vary with the cause of the condition. When interference in this form of rigidity becomes necessary the only remedy is the knife. Fortunately in the milder forms, most frequently due to cicatricial deposits, nature is able unassisted to overcome the obstruction, and the function of the accoucheur is similar to that in his handling of the anatomical form. When a cystic growth or a fibroid tumor interposes an obstacle insuperable to nature's efforts it must be removed. Instances do occur (fortunately very rarely) in which the morbid growth cannot be removed. Abdominal section is then the only alternative. In persistent constriction due to scar tissue the os must be incised bilaterally, care of course being necessary to avoid cutting the circular artery. Should the latter, however, be involved, either directly by the incision or by the subsequent passage of the child's head, the hemorrhage may be readily controlled by placing the woman in the Sims' position, retracting the perineum by the speculum and by means of a Deschamps needle carrying a ligature through the angle of the tear.

It is in the spasmodic form of rigidity of the os uteri that active interference is specially imperative, and in which properly directed therapeutic efforts accomplish the most satisfactory results. While the life of the woman is not imperilled by this condition that of the child certainly is. Laceration of the cervix is the very common sequel of this complication. It is, however, not a necessary sequel in the majority of cases, but is due rather, in my opinion, to the use of force, applied either by the finger to produce dilatation or to the too early application of the forceps. There remains of course no question that, in the absence of eclampsia or some serious cardiac involvement, the fetus should not be extracted through an imperfectly dilated os. The exigencies of an active practice, however, sometimes compel a departure from this rule and not infrequently, it is to be feared, it is departed from through lack of patience on the part of the accoucheur or through his inability to resist the importunities "to do something." The situation is at times, it must be confessed, trying, especially to young men. The young man will, however, under such circumstances, as well as under all others, find that it will pay him better in every way to be guided solely by his honest conviction as to what is the proper course to pursue. The remedies from time to time suggested for spasmodic rigidity of the os are quite numerous, and it would be more interesting than profitable to pass them in review. I shall confine myself to such procedure as I have found in my own experience most reliable. The first thing to be done on the supervention of the complication is to restore the uterus to its proper axis. This may be done by bimanual manipulation—hooking the finger of the right hand in the os and applying counterpressure with the left hand over the fundus. Very often this will of itself be sufficient to relieve the spasm. Formerly the application of belladonna ointment to the os was extolled as the remedy par excellence. Such application is, however, not at all convenient, and I have found the hypodermic injection of atropine equally efficacious. Its combination with morphine or the ordinary hypodermic tablet (morphinæ sulphate one-quarter grain and atropinæ sulphate one-hundredth grain) serves the double purpose of relieving the spasm and quieting the general nervous irritability which develops coincidently with the onset of the rigidity. As the cervix is an erectile organ, and as such lies under the influence of the emotions, the woman must be guarded against all psychic excitement of whatever nature. In obstinate cases I give an enema of a pint of warm water, holding in solution twenty grains of chloral hydrate. Chloroform anesthesia has been recommended in lieu of this, but in my experience it is not so effective. Chloroform is incomparably the remedy for spasm of the voluntary muscular fibre, but the nonstriated fibre of the uterus is not much influenced by it, as witness the uterine contractions which continue under profound anesthesia. The action of chloral hydrate given by the rectum is local rather than constitutional. When the woman in the latter months of pregnancy gives evidence through the frequent occurrence of local muscular spasm, or cramps, in the extremities that she is in the neurotic state which favors the occurrence of spasm of the os during labor, the exhibition of gelsemium will forestall the latter complication. The action of this drug on the cord very directly antagonizes the influences which make for tonic spasm. It quiets the dragging pains of the first stage of labor and its action is very marked in allaying after pains, which are due to reflex irritation.

It remains to consider the rigidity of the perineum. This condition is largely relative, being much dependent on the size and degree of compressibility of the child's head. A perineum which might offer comparatively little resistance to a small head would be regarded as rigid in the case of a large head. It is, therefore, impossible to define a rigid perineum otherwise than as it is revealed in its symptomatology. There is no pathological change in the structure of the parts to warrant its classification. It is questionable even that the muscles which form the floor of the pelvis ever suffer spasmodic tonic contraction. That the emerging head is liable, however, to rupture these muscles, unfortunately requires no argument. In the case of primiparæ such rupture in unassisted cases is the rule rather than the exception. To prevent it a great many rules encumber obstetrical literature for the proper method of "supporting the perineum." I shall not undertake to enumerate them, but I have personally faithfully tried them all, and I have no hesitation in saying as a result of my experience that some of them are useless and the rest are positively harmful. In spite of everything that may be attempted to prevent the accident of perineal laceration in a large percentage of confinements, especially of primiparæ, it will occur. I believe, furthermore, that it would occur less frequently if no effort were made to prevent it, for certainly some of the procedures recommended (such, for instance, as that advised by the noted RAMSBOTHAM) are positively irrational and harmful. The limits of this paper prevent a fuller consideration of this important phase of the subject. Granted that the vulvo-vaginal outlet in a large percentage of confinements is stretched beyond the extent of its normal elasticity, it remains for the scientific attendant to substitute for the irregular tear through important structures a regular, clean-cut incision at a location in which it can do no harm. The making of such an incision is known as episiotomy. The woman should be delivered with her perineum under the close observation of the accoucheur, and when it is apparent that the parts are about to give way the incision should be made. A single incision is preferable to one on each side. The point selected should be the middle of the lower quadrant of the circular outlet produced by the advancing head. I prefer the right side, but for no other reason than that I find it more convenient than the left. The incision should be made with a blunt-pointed bistoury introduced on the flat with the index finger as a guide. It should be from within outward, commencing at the constricting ring and carried outward to the integument. In most cases the advancing head will increase its depth, but not to any alarming extent. The ring having been incised the head advances promptly.

The incision in the selected location differs from the spontaneous tear, not only in the particular that it is regular and clean cut, but also in the fact that its edges naturally approximate each other instead of gaping apart. This approximation might be sufficient to insure primary union without suturing, but it is my practice to close the wound with a few interrupted stitches which may be readily introduced with a semicircular curved needle held in a needle-holder. Episiotomy is unquestionably one of the most important of obstetrical procedures, and its technique should be mastered by every one who assumes to deliver women. So firmly am I convinced of its practicability that I believe spontaneous rupture of the perineum to be absolutely inexcusable.

73 High Street East.

A STUDY OF MYCOSIS FUNGOIDES.*

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The patient that I have the honor to present to you this evening suffers from a condition so rare, so varied, so uncertain and so severe that I believe it cannot fail to be of interest to the general practitioner of medicine. A condition with symptoms so indefinite and unrecognizable as to render early diagnosis impossible; one covering an indefinite number of years, and one always of unfavorable prognosis and usually of fatal termination, is certainly worthy of consideration; and therefore I ask your kind indulgence in reviewing with me the life-history of this disease, especially as it is exemplified in the patient.

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*Read before the Detroit Medical and Library Association.

A man, aged thirty-two years, for the past two and one-half years the foreman of the building department of the Michigan Central Railroad Company, previously for two years a guard at the State Prison, Jackson, was referred to me in the latter part of 1898 by Doctor Charles G. Anderson, of the Detroit Sanitarium, for diagnosis. He presented in his early personal and family history nothing that would throw light upon the etiology of the disease from which he was suffering. He was a well-nourished, large, strong man, and his general health was excellent. He had been treated for two years by one physician and another for psoriasis, not an unnatural mistake, as in the early and prefungoid stage the disease in so many respects resembles psoriasis as to be impossible of differentiation. The tumor stage had already set in so that I knew the disease could not be psoriasis, though the body was profusely covered with a brownish-red, slightly elevated scaly eruption, in patches mostly discrete but sometimes confluent, of a variegated pattern but with a tendency to irregular, oval and gyrate figures, bearing some resemblance to psoriasis, but differing from it in that the infiltration was not as deep, the individual patch not as red, the margin not as well defined, the scales not as white, the scaling not as profuse and the itching decidedly more intense. The disease dated back about four years, and was brought to the patient's notice by an excessive itching behind the ankle bones while working nights at the State Prison. The itching extended with increasing vigor gradually over the other portions of the body, and the skin became hyperemic and scaly, especially on the flexor surface of the forearms; then small nodules appeared under the skin. Oozing was more or less constant, even under the dry skin, when scratched. This condition covered a period of three years when the tumors began to form, the first one being noticed about Christmas time of 1897. There were now numerous tumors over the body, varying in size from one-half to three inches in diameter. They were well-defined, firm, rounded, raised above the surface, but flat and more or less freely movable. In nearly all there was ulceration on the surface with free oozing of a watery, offensive, adhesive fluid. The tissues were partly necrosed and bled easily when the covering was torn away. The color was of a pinkish-purplish hue. They were situated as follows: two small ones on the forehead; one on the right side of the nose; three large ones on the right side of the neck; a very extensive one on the left forearm and in the flexure of the left elbow-joint; another large flat one in the middle of the back near the spine. Their formation had been gradual, and up to this time none had reabsorbed. No enlargement of the glands was perceptible.

A portion of one of the tumors was excised and submitted to DOCTOR WILLIAM C. MARTIN for examination, who confirmed the diagnosis of mycosis fungoides. On January 30 the patient consented to present himself before the General Dermatological Clinic at Saint Mary's Hospital, where my colleague, PROFESSOR CARRIER, concurred in the diagnosis.

Much interest has been manifested in recent years by dermatologists in the study of diseases of this class, but in spite of all, much mystery surrounds them, doubt as to whether the mycosis fungoides is in any way related to the true sarcoma existing among many of the teachers and writers. All, however, recognize the existence of a prefungoid stage which forms an integral part of the affection, and so the disease is usually divided for the purpose of study into at least two stages, the premycosic or eczematoid, and the fungoid or tumor. It is during this early stage that the great difficulty of diagnosis is experienced, suspicion being aroused merely by the persistence of the symptoms. Diversified indeed is this stage, exhibiting lesions resembling erythema, urticaria, pityriasis, psoriasis, eczema, and other forms of congestive disturbances. Most often it is ushered in by a persistent redness, an erythema of many forms and extensive distribution. At first the lesions are comparatively superficial, but gradually slightly elevated, more defined, annular, gyrate and often confluent. Definite areas are established, though the whole body may be extensively involved, the skin becomes thickened and dry, exhibiting a light brownish desquamation. Pruritus, either local or general, is marked, and the scratching induced alters and intensifies the cutaneous picture. The transient hyperemia passes into a persistent reddish, pinkish or brownish pigmentation, intensified by continued inflammatory action. As the weeks, months and even years pass on the whole skin becomes edematous, the lesions become thickened, and slowly from the lesions, but also from the unaffected skin, charteristic tumors arise, and the tumor stage is ushered in. No portion of the integument is free from attack, not even the mucous membrane, and often the underlying tissues, the fasciæ and the muscles are involved.

This is the usual history, but there may be no appreciable thickness nor infiltration, no scratching, but a persistent and increasing pinkish redness, accompanied by a continuous shedding of fine scales, the pityriasis rubra of HEBRA. Then, again, the lesions resemble more those of psoriasis, except that they are not so well marked in outline, as red in color or as pearly in scales. The first stage may last for years without any effect upon the general health of the patient. Very exceptionally no prefungoid stage has existed. With the advent of the tumor stage come tumors of all sizes, usually single, oval, flat, firm but freely movable, often with a tendency to ulceration at the top, becoming at times so extensive and offensive as to render the patient repugnant. No enlargement of the glands is perceptible, though *"**PALTAUF** regards as a variety of the disease those cases which are complicated with enlargement of the lymphatic glands, swelling of the spleen and liver, and the presence of nodules on the hard palate and tonsils." Sometimes the tumor changes but little during the disease, at other times the evolution is rapid. There is no fever present except that which is produced by local pus infection. Though the course now is variable, and the tumors may disappear of themselves and others reappear in the same or other spots, the health becomes gradually undermined, the tumors ulcerate, secondary infection takes place, and the patient succumbs to prolonged paroxysms of uncontrollable itching, to insomnia, marasmus or to some intervening trouble, dependent upon pus infection, general debility, as erysipelas, a diarrhea or pulmonary complications, but **HYDE** states that postmortem examination has rarely shown visceral involvement. †**UNNA** calls attention to the fact of the facility with which the tissue of mycosis fungoides is invaded by strange parasites, contrasting the true plasmomata (syphilis, tuberculosis) with their persistent and characteristic cell types with mycosis fungoides, with its frail and characterless cells, and suggesting that patients suffering from this disease are more in danger from secondary parasites than from the germs of their own disease, remarking that he has never found ulcerated tumors which do not contain numbers of microorganisms, to which he ascribes the final ulceration; and further that, "in the normal development of the disease, necroses, as in tuberculosis, do not occur, and internal reasons for the death of larger parts are not present; the thrombosis of the individual vessels of the skin is easily compensated. But the edema of the papillary body leads to ready elevation of the atrophic epidermis, and opens to the organisms of the outer world a magnificent field. Nevertheless there usually only develops a widespread saprophytism with slow destruction of the surface, and usually the patients perish much sooner from the thus-acquired general sepsis than the tumors do from the local."

Fortunately this disease is rare. It is supposed to be produced by a specific microorganism, to be an infectious granuloma, but its infectiveness has not been proved. The greater number of cases appear after the age of thirty-five. Writers have viewed the subject differently, and so we find the name synonymous with the inflammatory fungoid neoplasm of Duhring, the fibroma fungoides of Tilbury Fox, the sarcomatosis generalis of Kaposi, the myeloma cutis of Hyde, and the granuloma fungoides of Auspitz, et cetera.

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*KAPOSI: "Diseases of the Skin," American edition, 1895.

†"The Histopathology of the Diseases of the Skin," 1896.

The histopathology of the early stage has been studied by many English, French, German and American authorities, and has been summed up by Hyde and Montgomery as follows:

(1) * "Dilatation of vessels and perivascular infiltration.

(2) Marked cell infiltration invariably limited to the papillary and subpapillary layers, except where it forms the sharply-defined sheaths or cuffs about the lower vessels.

(3) An exceedingly delicate recticulum supporting the cells where the latter are most numerous.

(4) Edema of the papillary and subpapillary layers.

(5) Myotic figures in the corium and in the rete.

(6) Secondary changes in the rete, including hypertrophy and edema, with some form of cell degeneration. As the tumor-stage approaches the rete recedes before the connective tissue growth, and may be reduced to a mere line.

Different observers describe differently the variously formed cells, beside connective tissue cells, seen in the infiltration. This diversity of description merely confirms the observations of Unna and one or two others who state that this multiformity is characteristic of the disease. Unna believes that the varied shapes and sizes of these cells are the result of processes constantly going on, that is, cell multiplication and cell destruction, and that many of these odd forms are nothing more nor less than cell fragments. Observers do not agree altogether on the presence and significance of mast cells and giant cells, and of cell nests in the rete, or in the normal or abnormal condition of the larger connective tissue bundles which subdivide the growth. The differences in reported observations are due probably to a great extent to the different stages of the disease and types of lesions examined. The part played by endothelial proliferation is also a matter of dispute, though it is generally conceded that the process begins as a vascular dilatation, and with a sharply-limited perivascular infiltration of cells of the endothelial or young connective tissue type." Speaking of the gross pathology they note further that it is generally viewed that mycosis fungoides is one of the varieties of sarcoma, though it differs from the classical types by the occurrence of a prefungoid stage.

Kaposi regards mycosis fungoides as a form of sarcomatosis, classifying it among a group of diseases named by him the sarcoid

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* "A Contribution to the Study of the So-called Premycosic Stage of Mycosis Fungoides." Read before the American Dermatological Association May 31, 1898.

tumors, among which he includes lymphodermia perniciosa cutis, leukemia cutis and sarcomatosis, basing his conclusions upon the close clinical and histological relationship. As pointed out by Bowen, of Boston, the disappearance of many of these tumors, an involution never observed in any other form of malignant tumor, would debar mycosis fungoides from this class, as well as would the fact that in mycosis fungoides the skin is usually the only organ involved, while the sarcoma attacks other organs. Yet he does not deny a possible relationship.

I shall not attempt to enter into a review of the differential diagnosis, as it would not be of sufficient interest to you, but I desire to emphasize the inability always to recognize the disease in its prefungoid stage, and to call attention again to the difference of opinion in regard to the pathological nature of the disease.

Its prognosis is uncertain and is always grave. Some cases survive but a few months after the tumor stage and others may survive years. The average duration has been five years. But few recoveries have been recorded.

No treatment has been known to have any material effect upon the disease, but favorable results have been ascribed to the use of arsenic, and Crocker has suggested large doses of quinine. Upon the principle that a great deal of the external manifestations are due to secondary infection the use of the bichloride of mercury is recommended. For the itching, which at times is intolerable and uncontrollable, the various antipruritic remedies have been used, preferably powder dressings, as of iodol, boric acid, aristol, iodoform and dermatol, though pyrogallic acid in the form of an ointment has been tried. The ordinary care to secure cleanliness must be enforced. Extirpation of the tumors is the quickest and probably the safest method of dealing with them, though often a tumor will disappear of itself, and even though one may return upon the site of the one removed, not infrequently with increased malignancy. For cosmetic effect, when occurring upon the face or neck, removal is generally permitted. In the case I report the various tumors were removed by Doctor Angus McLean and myself between April 2 and June 11 without the use of any general anesthetic, but with the Schleich's method for local anesthesia. It was noticed that when a portion of one of the tumors of the neck was removed for examination, the remaining portion gradually became absorbed. No time was lost from work and the tissues healed rapidly. Internally thirty drops of Fowler's solution a day has been administered, and following Unna's suggestions the body has been bathed daily with a one to five thousand solution of the bichloride of mercury.

At the date of the writing of this paper, September 11, 1899, the tumors removed show no signs of returning, the scars are generally healthy though hypertrophied, especially at the flexure of the left elbow-joint. Here and there there is a denudation and some tendency to oozing. One large tumor, situated in the center of the back, which showed signs of absorption in June, had almost entirely disappeared during July and now nothing remains at the former site but an increased pigmentation. The skin is clearer than it ever has been, especially the face and neck, which at one time were repulsive. The skin, however, may be easily excited and the removal of the epidermis at any one of the hyperemic spots causes a decided oozing. Often the scar of an old tumor will heal but will not remain so for any length of time. The buttocks, however, are more infiltrated and roughened by small nodular elevations, aggravated by scratching. The itching, at one time very severe, is now less marked. Sometimes the continued use of arsenic increases the itching and so the medicine was discontinued for a while, with a gradual lessening of the pruritus. The general health of the patient continues to remain unimpaired. Since the removal of the tumors the patient's spirits have improved, though he has always shown a remarkable fortitude throughout his trouble.

The tumor I present was removed from the left forearm. The longest one was at the elbow-joint. The slides were prepared by Doctor Martin.

The microscopic examination of the tissue shows considerable thickening of the epidermis with long prolongations of the rete Malpighii into the cutis. The process consists of an infiltration of small round cells and a severe lymphocytosis at the bases of the papillæ in the connective tissue, also about the glands and hair follicles. In the deeper tissues of the derma a focus of round cells is found surrounding a blood-vessel. The irregular collections of cells are massed in a delicate framework of fibrillar connective tissue, which according to some authors (Paltauf, Kaposi) consists of bundles of cutis fibres pressed asunder.

The above finding corresponds almost exactly with those of Mracek, Kaposi and Fordyce.

THE WIDAL REACTION.*

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Gruber, in 1892, described agglomeration of bacilli as occurring in guinea pigs which had died after cholera infection; but it was left for Pfeiffer in the years 1894 and 1895 to describe fully for the first time the peculiar influence of the serum of animals immunized against cholera on the cholera vibrion, and of the serum of animals immunized against tyhoid fever on the typhoid bacillus, when added to broth cultures of the respective organisms and injected into the peritoneal cavity of other animals.

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*Read before the Ann Arbor Medical Club September 13, 1899.

During these years **Pfeiffer** published a number of articles tending to show that after inoculating the peritoneal cavity of guinea pigs, or man, with cultures of the cholera spirilla, or with typhoid bacilli, certain specific bactericidal (protective) substances are formed in the blood of such individuals, which produce a greater or less immunity against the invasion of the living germs of the respective diseases. **Pfeiffer** also observed that when a portion of a fresh agar culture of the vibrio is added to a small quantity of serum obtained from an animal immunized against cholera, and the resulting mixture is injected into the peritoneal cavity of a guinea pig, small drops of the liquid withdrawn at intervals in capillary tubes and examined microscopically showed in a short time that the vibrios first became motionless, then granular, and finally disappeared like sugar in water. In control animals the vibrios remained actively motile, and increased in number.

The organisms under the influence of the serum of immunized animals are "first immobilized, then swollen, and agglomerated into balls or clumps which gradually become paler, and are finally dissolved in the peritoneal fluid."

Animals injected with a mixture of cholera culture and the serum of immunized animals remained unaffected with the disease, while animals injected with a mixture of cholera culture and the serum of a nonimmunized animal, promptly died. **Pfeiffer** made use of this reaction to distinguish the cholera vibrion from other vibrions.

In March, 1896, **Pfeiffer** and **Kolle** published an article on the "Differential Diagnosis of Typhoid Fever by Means of the Serum of Animals Immunized Against Typhoid Infection." By this method, which consists in mixing with the serum of typhoid patients cultures of the typhoid bacillus, and injecting the mixture into the peritoneal cavity of a guinea pig, a characteristic reaction occurs. As in the case of the cholera spirilla, "agglomeration and agglutination of the bacilli occur, followed by immobilization, deformity, and final solution." The animal remains unaffected. The bacteria belonging to the colon group, and bacteria similar to these, are not influenced by the serum of animals immunized against typhoid infection.

Pfeiffer says that this change takes place only with typhoid bacilli, and is a specific reaction of the typhoid serum. He also showed that if the serum from an immunized goat was diluted with forty parts of the bouillon, and inoculated with a culture of the typhoid bacillus, and then placed in an incubator at 37° centigrade, there appeared in about one hour fine whitish flakes which settled to the bottom, leaving the supernatant fluid clear. The flakes, which were composed of typhoid bacilli, increased in distinctness for four hours, then gradually disappeared, while no such change occurred in the control tubes.

"Bouillon tubes mixed with cholera serum or the serum of non-immunized animals, inoculated with the typhoid culture, become cloudy and remain so." In the clumping already described, the bacilli are motionless, while in the cloudy tubes the organisms are actively motile.

Pfeiffer's conclusions concerning the typhoid reaction are accepted by the majority of writers as of great service in the diagnosis of typhoid fever.

More recently **Gruber** and **Durham**, following the researches of **Pfeiffer**, showed that human cholera serum would clump cholera vibrios. It has also been shown by other investigators that clumping of a similar nature occurs in pyoçyaneous infection, Malta fever, proteus infection, odium albicans, the bubonic plague, yellow fever, and relapsing fever. It is also claimed that a clumping occurs with the tubercle bacillus.

It was not until June, 1896, that any practical application of the agglutinating reaction was made. At this time **Widal** communicated to *La Sémaine Medicale* an article showing the clinical importance of the reaction in typhoid fever, hence the name, "**Widal** Reaction."

Widal described the phenomenon as follows: "Several bouillon tubes are separately inoculated with the typhoid bacillus and the bacillus coli communis, a few drops of the serum of an animal thoroughly immunized against typhoid infection are added to each of these tubes, they are then placed in the incubator at 37° centigrade. In four or five hours the tubes containing the bacillus coli communis begin to become cloudy, while the tubes containing the typhoid bacillus remain almost clear, or are but slightly cloudy, the microbes in these tubes having become precipitated to the bottom." This precipitate is visible to the naked eye.

"A drop of a culture of bacillus coli communis examined microscopically shows isolated bacteria for the most part actively motile. A drop of the culture of the typhoid bacillus, on the other hand, when examined microscopically, presents only scattered agglomerations of bacteria which are immobile, deformed, thickened and clumped together. No isolated or motile bacteria are seen."

"The formation of a precipitate visible to the naked eye, and microscopically, the immobilization, agglutination and deformity are the characteristics of the phenomenon." The same is true of the serum of the blood of a typhoid patient.

The first confirmation in Germany of **Widal's** work was that of **Doctor Breuer**, who examined forty-three cases of typhoid fever, all of which gave a typical agglutinating reaction, and twenty-seven cases other than typhoid with negative results.

The cause of this reaction is not yet determined. **Achard** and **Widal** made experiments with this point in view. They found that blood serum that was deprived of its globulin no longer retained the property of agglutination, while the globulin did. They further found that when globulin and fibrin were separated from the serum that both of these substances retained intense agglutinating power, while the serum which now contained only albumin had entirely lost its agglutinating property. The same is true of other serous fluids, as the fluid of blisters, the pericardium and peritoneum. The globulin of milk from typhoid subjects has been shown to possess agglutinating power. Some regard the reaction as one of immunization; others (**Widal**) think that these observations rather point to a reaction due to infection.

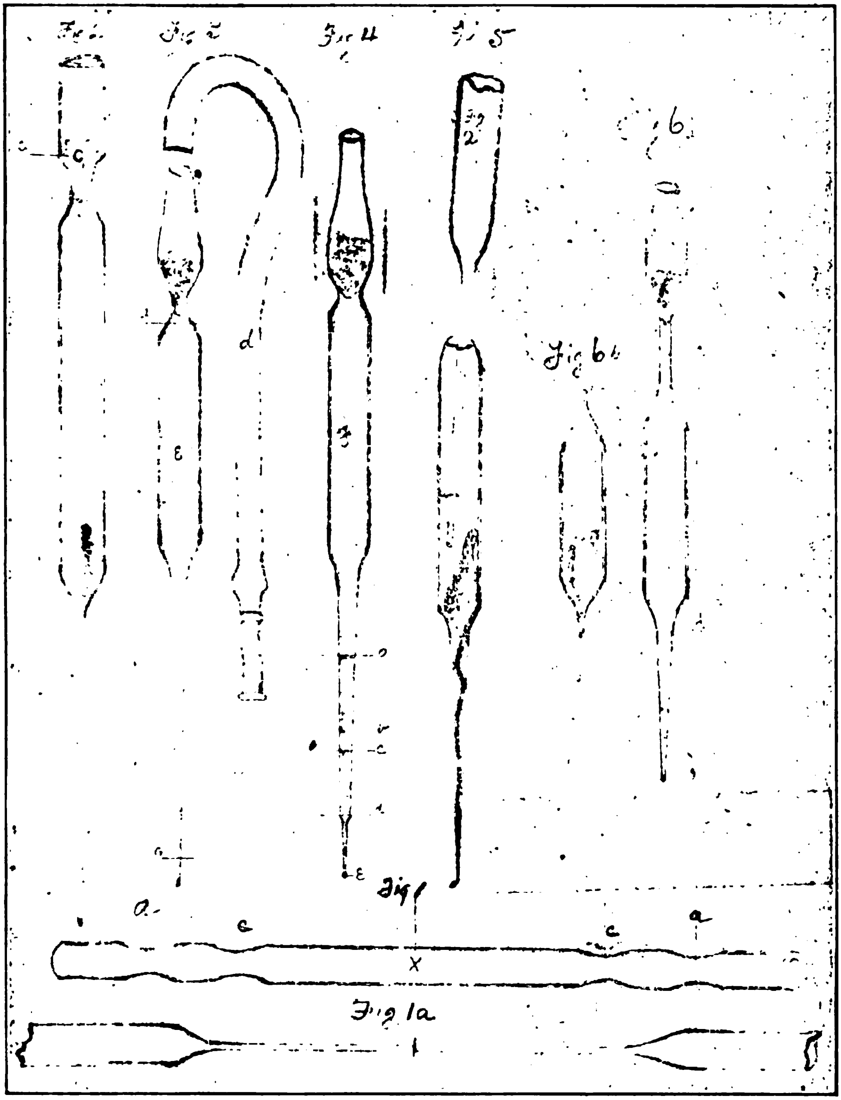
A peculiar phenomenon was observed in 1897 by **Widal** and **Sicard**, who communicated to the Society of Biology what they termed an improvement of their method. If the bacilli are destroyed at a temperature ranging between 57° centigrade and 60° centigrade, or by adding to the culture a drop of formol (forty per cent. formaldehyde solution) they will, even though dead, gather into clumps on the addition of the serum from a typhoid patient, or from an animal immunized against typhoid fever.

METHODS FOR OBTAINING BLOOD FOR THE WIDAL TEST.

The **Widal** test can be applied either (1) to whole blood, or (2) to dried blood, or (3) to blood serum.

The whole blood method.—A medicine dropper provided with a one drop and a ten drop mark is employed. After pricking the finger or ear the blood is drawn up to the one drop mark, the edges wiped off, and the contents of the dropper expelled into a tube to which ten drops of bouillon culture of the typhoid bacillus has been added. As many tubes as are desired can be thus prepared.

The dried blood method.—This is useful when specimens of blood are to be sent by mail. All that is necessary is to prick the finger and allow a number of drops of blood to fall separately on a sheet of paper. Bits of glass or mica, or better, tin foil, can be used for this purpose, and have the advantage of being smooth and nonabsorptive. The blood is allowed to dry thoroughly, after which the specimen can be mailed to any laboratory for examination. When the test is to be made in the case of paper, a blood circle is carefully cut out and placed in a test tube or watch glass containing two drops of water, and rubbed so as to dissolve the blood. This method was introduced by Wyatt Johnston, of the Board of Health of the Province of Quebec. By this method it is difficult to accurately measure the amount of blood used.



The blood serum method.—The blood is collected in some receptacle and allowed to clot; or better, it may be whipped with a glass rod and then centrifugated, or the clot may be loosened from the sides of the containing vessel with some sharp instrument, thus allowing the serum to separate. As much of the serum as is necessary can be used. The advantage of this method is that the dilution can be accurately ascertained. I find modified Pasteur pipettes very convenient for the purpose of collecting blood. A number of these (Figure 3) are made and kept on hand. They are made as follows: Take a piece of three-sixteenths inch glass tubing five or six inches long (Figure 1), and make two constrictions one-half inch apart at each extremity. These constrictions are made by holding the glass tube in a Bunsen flame until soft, after which it is removed from the flame and drawn out slowly; the constriction at *a* can be pulled out a little longer than at *c*, as it facilitates the attachment of the rubber tube *d* (Figure 3). Heat the tube at *x* till quite soft, then remove from the flame and draw apart quickly. Two pipettes thus result, connected by a slender capillary tube (Figure 1^a). The latter is then sealed in the middle in the flame. Make a file nick at *a* (Figure 1), and snip off the large ends. The upper or rubber tube end is plugged with cotton (Figure 3). The narrow neck *a* is to prevent the cotton plug from slipping down into chamber *e*. These tubes are sterilized and laid away for future use. A large Pasteur pipette (Figure 2) with long capillary tube for mixing, et cetera, is made in the same way. To obtain blood, wash the finger with water and alcohol, and wipe dry. Make a file nick at *c* (Figure 3), and snip off the sealed end. Prick the finger with a sharp knife point and suck the blood up into the pipette as high as desired, taking care not to admit unnecessary air, seal the end of the tube with a match flame, and then place the pipette in a thermometer or spectacle case prepared as mentioned below. A centrifuge is not necessary to secure serum, inasmuch as this will separate in a short time. In hospital work, however, the serum is wanted immediately, and in that case the tube can be centrifugated at once. To avoid breakage the blood should be first drawn from the capillary tube into chamber *e*, and the tube sealed higher up. The blood is thus obtained practically under sterile conditions, and will therefore keep indefinitely.

When the serum is to be used make a file nick at *a* (Figure 3), snip off the end, introduce the mixing pipette 2, as in Figure 5, and draw off the serum.

Pipette 3 may be readily transformed into a capsule for mailing (Figure 6, *a* and *b*) by sealing capillary tube at *c* and *d* in the flame. From such a sealed tube the serum can be removed as above, or by opening one end and applying heat to the other when the serum runs out.

A convenient outfit for collecting blood for the Widal reaction may be made as follows: A spectacle case, open at the end, can be divided into four compartments by means of a W-shaped strip of sheet iron fixed in place with a brad. Absorbent cotton is packed in the bottom of each compartment to fill up extra space and protect pipettes. The first compartment contains a cataract knife and a small jeweler's file, the second a pipette, the third a vial of alcohol, and the fourth the rubber tube. Or the case may be filled with pipettes.

THE CULTURES TO BE USED.

WYATT JOHNSTON uses an agar culture of an attenuated bacillus. The cultures are kept at room temperature and are not transplanted more than once a month. This bacillus of reduced virulence shows "slow gliding movements," and, according to JOHNSTON, it clumps far less readily with his dried blood method than do virulent cultures.

According to others, ordinary pepton bouillon free from sediment, and very feebly acid in reaction, is considered the best medium for making the test culture. Most writers, however, prefer a young virulent culture, on agar, from twelve to twenty-four hours old, for making the test, as it is less liable to give a false clumping.

The cultures used must respond to all the tests required for the recognition of the typhoid bacillus; they must be kept away from strong light, and stock cultures must not be allowed to get too old.

There are two methods for observing the reaction; the macroscopical and microscopical.

The macroscopical method.—A mixture of one part of serum to ten parts of sterile bouillon placed in a test tube is inoculated by means of a platinum loop with a small bit of agar typhoid culture. A perfect mixture is secured by rubbing the wire against the side of the tube, after which the latter is placed in an incubator at 37° centigrade. If, after eight to twelve hours, a precipitate of white flakes is seen suspended in or at the bottom of a clear fluid, the reaction is considered positive. A mere cloudiness of the liquid shows that the reaction is absent.

Pasteur pipettes, modified as described, have been also employed in this connection. The method of procedure is as follows:

With a wax pencil or ink make a mark on the capillary tube of the pipette at *c* (Figure 4), and fill the tube to this mark with the diluted serum; then remove the pipette and aspirate its contents a trifle so as to create a small air space or bubble *d–e*; the diluted serum now occupies the space *d–b*. Now place the pipette in the bouillon culture and suck this up to the mark *c* as before. There is now in the capillary tube one part of the diluted blood separated by a small column of air (*b–c*) from one of the bouillon culture. On sucking the contents of the tube into *f*, which serves as a mixing chamber, perfect mixture can be secured by repeatedly forcing the liquid into the capillary tube and reaspirating. Care must, of course, be taken not to blow out the contents of the tube. Seal the end and mark the pipette 1-20, 1-30, as the case may be, and then place it in an incubator at 37° centigrade or keep it at room temperature. At the end of twelve to twenty-four hours a precipitate or flocculent deposit will form if the reaction is positive.

The foregoing method can be used to advantage in the absence of a microscope, but when an instrument is available, it is decidedly preferable to employ

The microscopical method.—The method used in this clinical laboratory is as follows:

The blood from the end of the finger is received in a modified Pasteur pipette and allowed to clot. The clot is loosened from the side of the pipette with a platinum wire. Five glass cups, or small watch glasses; five concave slides, as used for hanging drop examinations; one straight platinum wire; one platinum loop; five round cover slips, and a Pasteur pipette (Figure 2) with long capillary tube are necessary for making the test, all of which apparatus must be thoroughly clean. The pipette is filled with distilled water and the five cups receive respectively ten, twenty, thirty, forty, and fifty drops. The serum is drawn up into the same tube and one drop of it is then placed in each cup. The fluid in each cup must be thoroughly mixed. This is done by means of the pipette already used which has been rinsed meanwhile in distilled water. The pipette is placed in the weakest dilution (one to fifty) and the fluid is drawn up and then blown out. This is repeated several times until thorough mixing results. The pipette is then rinsed in distilled water, and the procedure repeated with the other dilutions. A drop of the fluid in the one to ten cup is placed on a cover slip and to this is added a minute bit of the typhoid culture to be used, and the whole is thoroughly mixed by stirring with the end of the platinum wire. A concave slide which has been previously ringed with vaseline is inverted over the cover slip. The specimen is then immediately examined with a number seven or one-eighth objective for loss of motion and for agglutinated masses (Figure 10).

A control specimen (Figure 7) is made by adding a similar quantity of the typhoid culture to a drop of distilled or sterilized water, and is prepared in the same way. As much care is necessary in preparing the control as in the serum preparations. In both cases too much care cannot be exercised in order to secure a perfectly even distribution of the culture through the drop. Failure to use such care may lead to pseudoreactions (Figure 8), especially when old or attenuated cultures are used.

If clumping (Figure 10) does not occur with the lowest dilution in thirty minutes, it is not probable that it will with a higher dilution. If clumping occurs, the next higher dilution is tested, and so on till the highest dilution is reached.

The reaction must occur with the dilution one to twenty or thirty, before we can call it positive. It has been shown that the serum of persons affected with other diseases and even that of healthy individuals will form clumps like typhoid serum unless the blood is diluted higher than one to ten. **Grünbaum** has shown that some typhoid serum clumps better when diluted high than when undiluted.

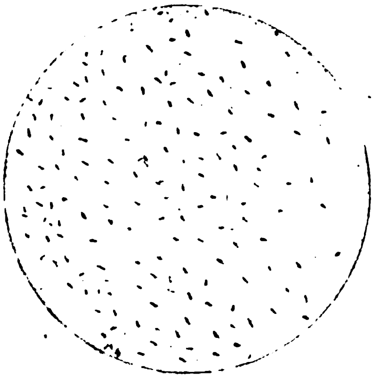


FIGURE 7.—Control Preparation in Sterilized Water.

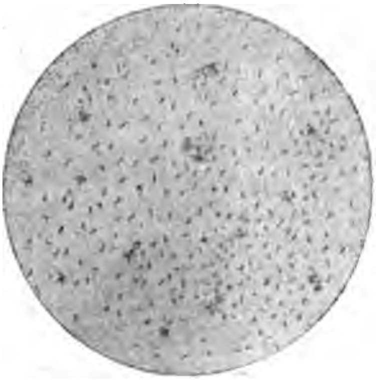


FIGURE 8.—A Pseudoagglutination.

The reaction has been observed in acute miliary tuberculosis, tuberculous peritonitis, phthisis and heart disease. The number of such cases reported is, however, small. The reaction, then, must be a quantitative one, as fortunately the typhoid serum has a more powerful action on the typhoid culture than the serum of any other disease. The reaction may be positive after a dilution of one to one hundred, and **Widal** has seen it in dilutions as high as one to twelve thousand.

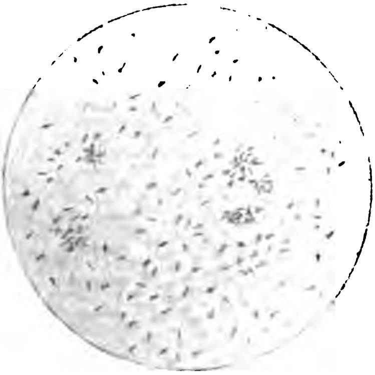


FIGURE 9.—Beginning Agglutination.

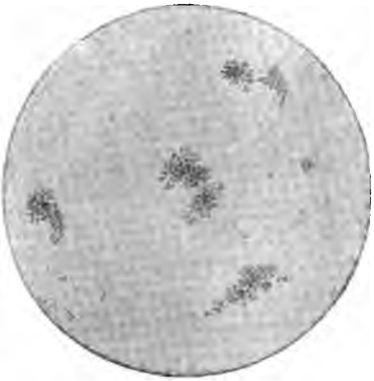


FIGURE 10.—A Typical Agglutination.

The time limit is a most important consideration. **Gruber**, **Grünbaum**, **Block**, **Park**, and others have adopted thirty minutes as the time limit of the reaction. The Widal reaction may be considered a pathognomonic sign of typhoid fever only in the sense that it occurs more readily and in the presence of greater dilutions than in any condition yet described.

There is no definite time during the course of the disease when the Widal reaction is present, hence the necessity of repeated tests. It is almost always present during the second week. It may occur as early as the third day and as late as several years after recovery.

The value of a reaction for clinical diagnosis can only be determined by the comparative results of a large number of experiments or observations on patients afflicted with the disease, and on normal individuals. The following statistics give to the Widal reaction a permanency among methods for clinical diagnosis, and insure its general adoption by the medical profession.

Of three thousand cases of supposed typhoid fever collected by **Cabot** in which the Widal test was applied, ninety-five per cent. showed agglutination at some time in their course; two thousand and five hundred odd control showed two per cent. positive results in cases other than typhoid fever. **Cabot's** own experience covers two hundred and two cases of typhoid fever, all but seven of which were positive and in four there was no opportunity of retesting.

Biggs and **Park** collected fifty-two cases in which the Widal test had been applied from four days to thirty-seven years after recovery from typhoid fever; of these thirty-two were positive and twenty negative; that is, about sixty-one per cent. positive. Of three hundred and eight cases other than typhoid fever the reaction was positive in fifteen, negative in two hundred and ninety-three; of forty-six healthy subjects tested, the reaction was positive in four, negative in forty-two. **Cabot** says that in "over three thousand cases of various diseases not typhoid, not over a dozen have been proved to clump typhoid bacilli with proper technique. It is quite possible that further improvements in technique may enable us to prevent even this very small error."

The Widal reaction occurs in typhoid fever at all ages. **Mossi** obtained it with the blood serum of a newborn infant of a typhoid mother. We may say with some degree of safety, then, that ninety-five per cent. of typhoid fever cases give the Widal reaction at some period during the disease, and that possibly sixty-one per cent. give the reaction for a considerable time after recovery.

The ease with which the blood for making the Widal test can be obtained makes it possible for every physician to have as accurate *information regarding his suspected typhoid case as can be obtained.* While it is practically impossible for the busy practitioner to do the technical, bacteriological part of this work, *he can collect the blood for examination.* If every detail, and they are not many, is carried out in the use of the pipettes, the bacteriologist to whom they are sent can do as accurate work as he could had he obtained the blood directly from the patient himself. It hardly seems necessary to emphasize once more that bacteriological cleanliness must be observed in collecting the blood.

There are many cases of so-called continued fever that are improperly treated because their real nature is unrecognized. Typhoid fever frequently presents variations in its course, and too much care cannot be taken in order to make a correct diagnosis. It would be an error to depend on the Widal reaction alone, for it is not the one symptom, but the gathering together of the most important symptoms that enable us to make a diagnosis. The Widal reaction is emphatically one of these, and its presence, so to speak, clinches the diagnosis.

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A CASE OF CYCLOPS.

By FRANK B. WALKER, M. D., Detroit, Michigan.

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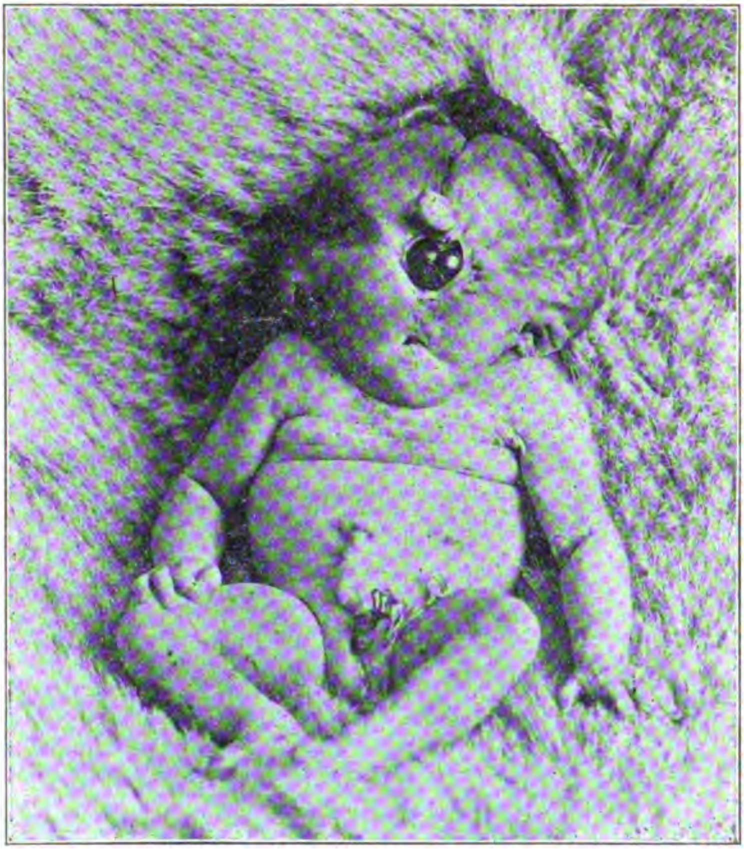
This specimen came into my hands through the courtesy of a midwife, who gave me the following history: M. E., twenty-seven years of age, was delivered of this, her first born, at full term, January 1, 1900. There was nothing peculiar about the sickness except that the flattening of the head, which presented, obstructed free delivery and necessitated the use of compressing forceps. Life had been felt on the morning of the 1st, but it was a stillbirth. So far as was known the parental history was good. There was no record of accident or unusual incident of any kind during the period of pregnancy.



Examination of the specimen externally shows no defect either in the body proper or extremities, but the head is seen to be cyclopic, hydrocephalic, and shapeless from imperfect development of the cranial bones. The orbital fossæ are confluent, and contain two corneæ within two distinct but rudimentary balls. The whole presenting surface of the eyeballs is covered with a reddened conjunctiva. There are no eyelids. Displaced upward above the orbital fossæ are the two rudimentary nasal bones. Situated above the nasal bones and likewise above the fossæ is a fleshy mass about three-fourths of an inch long, presumably the nose but resembling a penis. At the end of it is a small opening which expands near the middle and divides by fleshy tissues into two blind sinuses. The upper cervical spine seemed at first to be bifid, but this appearance was later found to be due to absence of part of the occipital bone. The bones of the face are normal with the exception of the nasal.

Within the skull of this monster the cranial bones are all found to be imperfectly developed. The horizontal plate of the frontal is absent, or at most only arched. The basilar process of the occipital bone is present and bears the foramen magnum, but beyond the ring of bone surrounding the foramen magnum the occipital bone is absent. In its place supporting the cerebellum are strong bands of fasciæ in which are four openings, disposed symmetrically around the foramen magnum. The brain substance is small in quantity, soft from contact with fluid, and presents no well-marked convolutions. The optic tract is present. The skull contained eleven ounces of bloody fluid.

TETANUS, WITH REPORT OF CASES.*

By ALVAH N. COLLINS, M. D., Detroit, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

In calling attention to this subject the infrequency with which it is encountered may make us doubt its practicability. When met, however, we feel that all we can know about it is far too little. Never have I noticed the report of so many cases as during the past summer. Twenty-eight cases were reported during the few days following July 4, in and about New York City alone. Other cities reported cases in like proportion to population.

Whether we celebrated the wonderful achievements of our arms on land and sea with greater vim, or from other causes, we certainly had many cases of tetanus following trivial injuries received on July 4. The greater number of cannon firecrackers and toy pistols firing blank cartridges may have had causal relation. Most cases reported had received injuries from toy pistols firing blank cartridges. Why this form of injury should offer better opportunities for infection than other wounds, I cannot say. However, a lacerated wound less quickly protects itself from infection, through the normal process of healing, than a cut. A wad blown into the tissues would combine practically the favorable conditions of a lacerated wound and a puncture, wounds most favorable to retention and infection. With our present antiseptic and aseptic methods known to all, tetanus is probably in nearly all cases a preventable disease. In some punctured wounds this may not be so easy unless we destroy more tissue than seems warrantable at the time of first dressing the wound. In obstetric practice, we are also more at the mercy of the germ, as in many cases it may come on after we consider our patient well.

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*Read before the Wayne County (Detroit) Medical Society.

We know, or at least it seems to be demonstrated, that tetanus is due to the life activities of the tetanus bacillus. **Brieger** and others have demonstrated, and practically proven that the poison developed by the chemical activities of the tetanus bacillus, is a toxin synthetically developed. It has been held that this activity was a ferment —that it was developed by a splitting up, or analytical process. This view is not now held by those most competent to speak with authority. Not the bacillus itself, but its product—the terrible toxin produced by it—gives rise to the terrific symptoms we term tetanus.

The physiological chemists make a destinction between ptomains and toxins, which we will not consider. The ptomains tetanotoxin and spasmotoxin, though powerful poisons, do not give rise to the same phenomena when injected into an animal as the true toxin isolated by **Brieger** and **Cohn**, who have succeeded in producing it from cultures of the tetanus bacillus. They found in the purest form obtainable, by culture and isolation, that the one-seven-millionth grain produced fatal tetanus in a mouse, and estimated this poison to be two thousand five hundred times more powerful than strychnine.

If we take one-fourth grain as the smallest lethal dose of strychnine, in this toxin of tetanus we have a poison capable of causing convulsions and death in doses of the one-ten-thousandth grain—a revelation of power hardly credible. This germ is present in the soil in most places. In and about old cities like London, and especially localities where fog and mist prevent the sunshine from exercising its well-known purifying influence, cases are most numerous. At the eastern end of Long Island, near the sea, cases are very common. That tetanus is due to an infection has long been known. In the light of our present knowledge, for which we have to thank the physiological chemists and bacteriologists, it is instructive to note the keen observations of those older writers who, unguided by definite knowledge, drew their conclusions from what they saw. Its occurrence during the puerperium was known to even the ancients. **Aretaeus** gives abortion as a cause. **Copeland** says parturition and abortion are causes of tetanus. In 1820 **Fournier–Pescuy** says he has seen the disease show itself in puerperal women. **Velpeau**, in 1832, related a case of a woman who, after an abortion, developed tetanus. **Storer**, in 1842, related a case in which the placenta was alowed to remain and putrify in the womb, developing fatal tetanus.

It was not till **Simpson's** paper, in 1854, in which he reported twenty-seven cases, that much attention was given the subject by obstetricians. I think you will agree with me in my observation that not half of the practitioners of today ever think of tetanus in connection with the puerperium. It deserves our attention in these days of streptococci when nearly all deaths occuring at this time are classed as puerperal fever. Some of them result from tetanus.

I have the rather rare opportunity of reporting a case to you tonight which, in my opinion, could be explained in no other way than by a diagnosis of tetanus.

Case I.—A married woman, aged twenty-four years, a primipara of Scotch descent and a decided blonde, experienced the advent of labor at full term about 4 o'clock A. M., October 10, 1899. Labor progressed fairly well until the head was well engaged in the inferior strait. After continued enfeebled pains, continuing for an undue length of time, no further progress was made. At 5:30 o'clock P. M. I was called by the physician in charge to administer chloroform and assist in delivery. At 6 o'clock P. M. an anesthetic was given and the child delivered easily with forceps. There was no apparent laceration except a slight breach of the fourchette; neither was there hemorrhage. The uterine tone was unusually firm. On recovery from the anesthetic the patient was in the most favorable condition. The attending physician reported no fever or trouble of any kind until the evening of the eighth day—October 18. The nurse stated that mother and child had progressed exceptionally well. The physician reported, on the evening of the eighth day, a feeling of stiffness and pain in the spine extending to the back of the neck with extreme nervousness. Patient attributed it to the effects of a fall sustained several years before. Her temperature was 101°. I advised an intrauterine douch of one to one thousand bichloride solution which was given. No odor or soreness or other trouble was manifest. About 2 o'clock A. M. on October 19, patient was seized with a spasm, could not breathe, and the nurse feared she would die, but she soon recovered from this and her physician was not called until about 8:30 o'clock A. M. October 19, when she complained of stiffness of back and neck. Her temperature was 103°, she was sweating profusely and her breathing and pulse were accelerated.

I was called at 10 o'clock A. M. and found a temperature of 108°, respiration very rapid, face drawn, head drawn back, and patient unconsious. The pulse was so rapid and thready that I could not count it. Patient had terrific spasms markedly resembling strychnia poisoning and characteristic risus sardonicus, with head drawn back and legs and feet extended. On coming in from an adjoining room I spoke to the nurse and the patient was thrown into spasms by my speaking, seemingly. The spasms continued with greater frequency until 3 o'clock P. M., October 19, when patient died, less than twenty hours from time of first symptom.

Urinary and other secretions had been normal, and all conditions had been exceptionally favorable until the beginning of the manifestation of the poison. There was absolutely no symptoms manifest except those of nerve origin. The extraordinary temperature which continued until death—108°—and the cyanosis due to impaired respiration were, aside from the spasms, the most marked symptoms. This high temperature has been noted in many cases I find reported. Unless one has seen the peculiar expression and symptoms in this terrific disease it might be easily mistaken for strychnia poisoning, and in a prolonged case, except for its spasmodic character, might easily be taken for the usual infective fever of the puerperium.

Case II.—A young man about sixteen years of age, strong and healthy and of German descent. On July 4 a toy pistol loaded with a blank cartridge exploded in his hand, wounding the member. The wad was blown into the hand between the third and fourth fingers, making an apparently slight wound. He was attended by a physician who dressed the wound, washing it with borolyptol and requesting patient to return if further trouble was experienced. Patient returned on July 6 with hand swollen and painful and covered with bread and milk poultice. His physician advised him to continue the poultice, telling him to report if not better, which he failed to do. Patient complained of stiffness of neck in the afternoon of July 8. The first spasm occurred late in the afternoon of that day but was slight and not noticed by his family. No heed seemed to have been taken of his symptoms until evening, when he fell off his chair and later went to bed. It was then noticed that he did not "act right" and DOCTOR N. F. BROWN was called at 11 o'clock P. M., July 8. He found him with trismus and well marked symptoms which made him unhesitatingly pronounce it tetanus.

I saw the case in consultation with DOCTOR BROWN at 11:30, at which time the patient could not swallow without being thrown into characteristic spasm. His temperature was 103° and pulse rapid. He did not complain of pain. I found his hand much swollen, and on removing the poultice pus exuded freely. I washed the wound well with bichloride solution, removed a wad which had penetrated only about one-half inch, and again thoroughly cleansed and dressed it antiseptically. Morphine, chloral and bromide were freely administered. An effort to give chloroform was made but at each attempt it threw him into spasms which continued to grow more severe and frequent until about 6 o'clock July 9, when he died.

The symptoms were classical. The body would arch upward until he would fall over on his side, with heels and head nearly touching, the drawing lips conveying the impression of the mouth being open though the teeth were set, giving that expression which once seen is not easily forgotten.

There was nothing of unique or unusual interest in this case and its only value is to show the typical form of an acute case of this disease coming on so soon after the wound.

Nearly all cases manifesting symptoms of tetanus within a few days of receiving the wound prove fatal. I find that nearly all cases showing symptoms during the first week die. The prognosis is better the longer the time elapsing from receiving the wound until the first symptoms are manifest.

Evidently in this disease we must do our best work in a prophylactic way. After symptoms once develop the mischief is done and I doubt whether any remedy has yet been found to more than modify the disease. We hoped for much from the antitetanic serum but it has failed to prove of much value in the so-called acute cases or cases that develop symptoms within a few days of receiving the wound. If our conclusions that the tetanus bacillus chemically elaborates a toxin of the virulence shown, sufficient of the poison has been produced to overcome the nerve centers and antitoxin, though it kill the germ present, would be too late to avail anything. The only hope of success seems to be in a late mild infection, thorough antisepsis of wound and supporting treatment with remedies to control the spasms until the nerve centers recover sufficiently to take up their normal activities.

Many remedies have been suggested. The carbolic acid treatment has recently met with much favor. Three grains of carbolic acid made into a two per cent. solution and injected hypodermically during the twenty-four hours is reported successful in some cases. Chloral, bromide, cannabis Indica and opium have long held their places in controlling spasm. Chlorotone would theoretically be indicated. It was tried on Case II but ineffectually as it was too difficult to administer so late in the disease.

In our failures in treatment we see greater need for prophylaxis. Our prophylaxis must be broad and include the primary dressing and care of all wounds. If you will pardon the degression I will say a word about the treatment of so-called trivial wounds. Never have I had a lesson more impressive of the need of great care in treating all wounds than in the case reported of the young man from whose hand I took a wad, lying practically on the surface of the wound, four days after the injury. I would like to say—and say it loud enough to reach all who treat wounds—*that all wounds are serious or may become so.* The term "trivial wound" is a misnomer. Whenever the protecting skin is broken the receptive system is exposed to the many virulent inoculations ever present. No one can safely venture an opinion as to how far the destructive organisms, with their terrible weapons, may disorganize vital processes. The late General Poe received a so-called trivial wound; neglected, it resulted in his death. You are all familiar with similiar cases. There is but one safe method of handling "trivial wounds:" Treat them as though you knew they were or would become infected with all the virulent germs known unless your care and skill get them out and keep them out. We will in this way save the patient much suffering—possibly his life—and whatever follows we will have done our duty and all that can be asked of professional skill, protecting ourselves from censure, professional or lay.

This method of dealing with wounds I regard as the most efficient treatment of tetanus, whenever conditions and opportunity permit us to do it. All other treatment, so far as I can learn, is symptomatic. Many remedies have been used and many vaunted as specific, as in all baffling diseases. To study them would profit us little.

The mortality of this disease is very high. In puerperal cases Doctor Garrigues collected twenty-five cases due to abortion, with twenty-three deaths; of thirty-two cases following parturition twenty-seven died. Connor records from civil and military hospitals one thousand three hundred thirty-two cases of which one thousand and sixty died, a mortality of nearly eighty per cent. When we consider that in this number of cases many must have occurred from other causes mistaken for tetanus, we reasonably conclude that cases of true infection with the tetanus bacillus rarely recover. When recovery takes place it is probably a mild infection, constitutional peculiarities and other causes than methods of treatment enabling the patient to survive the effects of the tetanus toxin in acute cases.

REPORT OF A CASE OF SEPTIC INFECTION.*

By GEORGE G. BARNETT, M. D., Ishpeming, Michigan.

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My reason for reporting the following case is that, in my opinion, it presents a few points of more than ordinary interest.

On the 28th of last April, about 11 A. M., I was called to the "dry" or changing house of Lake Angeline Mine to see Mr. J. W., who had been taken suddenly sick. I found him in condition of severe rigor, hands and feet cold and shrivelled, lips and finger-nails blue, respiration rapid and shallow, pulse quick and feeble, but without pain, cough or nausea, except a slight soreness and tenderness over the right sacral region extending downward to back of thigh, simulating a mild sciatica. A generous dose of whiskey, and the external application of heat by means of bottles of hot water restored him sufficiently to learn from him that, while about his work as "shift-boss" underground, "he began to feel weak and chilly," and growing rapidly worse, started for the surface by way of the ladders, but before he was half way up his strength failed him, and a fellow miner happening along just then, assisted him into the "skip," rode with him to the surface, and carried him to the "dry" house where I found him. After two or three hours he recovered sufficiently to walk to his home, a short distance from the mine. During the afternoon I telephoned to the house, and learned that he was feeling quite comfortable, but the next morning I was called to see him, and found him with a temperature of 104°, pulse 130, rapid respiration, and with history of another "chill" during the night, although not as severe as the first one. The high temperature declined after a few hours, and was followed by profuse perspiration, which condition was followed late in the evening by another chill, then high temperature and sweating as before. These symptons were repeated daily, for a week or ten days, presenting the usual symptoms of intermittent fever, except that of regularity, some days patient having three chills, some days only one, but always followed by fever and the fever by sweating. Notwithstanding the absence of regularity, the diagnosis of intermittent fever was suggested, but as he had never had this affection before, and had lived for the past fifteen years in Ishpeming, we could not verify the diagnosis by history. Typhoid fever was also suggested, pneumonia was thought of at first attack, but finally septic infection was decided upon as the correct diagnosis and future developments proved the accuracy of the decision.

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* Read before the Upper Peninsula (Michigan) Medical Society.

Two weeks after date of first visit, an abscess developed over the point of the left elbow, a week later one on the ulnar border of the left hand, a few days later one in the palm of the right hand involving second finger, later one over the point of the right elbow, later a very large one on the outer side of the left thigh, extending from about the middle of the thigh to within one and one-half inches of the knee-joint, later one over the anterior surface of the left shoulder, extending from the point of the shoulder to the middle of the clavicle, and downward into the axilla, and back part of the arm. One month from date of first sickness an abscess was opened on the right breast, about an inch to the right of the lower end of the sternum, the cavity of this abscess extending diagonally upward and outward about half way to anterior border of the right axilla. On the 23d of June two more were opened, one on each side of the perineum. All these abscesses were opened, irrigated and drained; the quantity of pus discharged was enormous, an estimate of one hundred ounces being well within the limits of accuracy.

During the time that abscesses were forming and discharging, the temperature range was very irregular, sometimes being normal for a day or two, then suddenly rising to 103° or 104°, and finally during the last week remaining normal. As a complication a synovitis developed in the left shoulder-joint, no doubt as a result of close proximity of abscesses. A partial ankylosis persists, which renders the arm useless at present. As usual in such cases emaciation was extreme, and in this case loss of strength to such a degree that patient was unable, for several days, to turn himself in bed without help. His appetite was entirely lost for the first two weeks, gradually returning until during the fourth and fifth weeks he ate heartily. His diet was generous, consisting of soups, meats, fish, eggs, milk and fruit, with porter, whisky and wine as side dishes. At present the patient is able to get up and dress himself, go down stairs, eats heartily, and is rapidly regaining flesh and strength.

We have been unable to discover a cause for all this trouble. We do not, however, insist that this is the fault of the cause. The patient, a man of forty-five years of age, single, of very regular habits and temperate in every respect, had been working steadily for months preceding, and up to the day he was taken sick. His family history is good, and there is no history of any wound, of even slightest importance, no previous sickness, as far as can be learned, and no apparent reason for the abrupt and severe attack of present illness. Granting the presence of some very slight wound, a scratch, or prick of a pin, or a slight abrasion of the skin, we would expect some local manifestation, gradually extending and becoming general. The possibility of an undiscovered pyelitis suggested an examination of his urine, which gave only a negative result. Microscopic examination of pus demonstrated the presence of streptococci.

Most writers in our text-books, when discussing the etiology of septicemia or pyemia, presuppose the existence of some injury, such as fracture of a bone, or the contusion of soft parts; these *not* being present then an open wound, either accidental or surgical. We find none of these conditions present in the case under discussion. Doctor Francis Delafield, writing in the "International Encyclopedia of Surgery," classes certain cases under the head of "Spontaneous Pyemia," describing them as follows: "Under this name we include a group of obscure cases, which resemble ordinary cases of pyemia in symptons and lesions, but are of obscure etiology. They do not begin with a wound, or bruise or abscess. An individual without known cause, will be seized with rigors, followed by a febrile movement, and marked prostration. There may be vomiting, or diarrhea, or cough, sometimes ecchymoses or pustules appear in the skin. Usually headache and delirium are present. The patient dies in a typhoid condition. At the autopsy, lesions are found like those of pyemia, abcesses and infarctions in the lungs and kidneys, and suppurative inflammations of the joints and connective tissue."

The above description applies to my case in many particulars, although you will note the absence of the "typhoid condition" and the "autopsy."

Some of the special points of interest in this case, to which I would call your attention, are:

The very sudden and severe attack, coming on without warning or premonitory symptoms.

The apparent absence of any sufficient cause, either recent or remote, for the severe attack and long continued illness.

The symmetrical development of the various abscesses, appearing in both elbows, both hands, practically both shoulders, and both sides of the perineum, the outer side of right thigh being the only locality which was not involved when its fellow limb suffered.

TRANSACTIONS.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, OCTOBER 16, 1899.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR ANDREW P. BIDDLE read a paper entitled "A Study of Mycosis Fungoides." (See page 7.)

DOCTOR CARRIER: I do not know that I can add anything to the interesting paper presented by **DOCTOR BIDDLE**. He has covered the ground pretty thoroughly. The case is intensely interesting on account of the lack of knowledge as to what the disease really is. At the meeting of the American Medical Association held in Columbus in June last, a man was presented, before the section on "Cutaneous Medicine," with no tumor formation whatever, but with a history of having had eczema for six or seven years. Every one of the physicians that examined him pronounced the disease lichen ruber, with the exception of **DOCTOR BULKLEY**. He made the diagnosis of "premycosic stage of mycosis fungoides." The existence of this premycosic stage varies in time, and in some of the cases it does not exist at all, but when any case of eczema, or an eruption which is like psoriasis, or one of the lichens, or pruritus, persists against all treatment for a number of years, the opinion obtains that it is a case of mycosis fungoides in the premycosic stage. Quite a number of cases are on the waiting list at present among the dermatologists of this country. There are a number of diseases, of course, that are similar to this. The sarcomas have already been mentioned. There is difficulty in making a diagnosis between them. DOCTOR BIDDLE has already stated that mycosis fungoides attacks only the skin, a very different condition from what we have in sarcoma. There is another condition which it seems to me may be allied to this, and that is xeroderma pigmentosum. One or two cases have been reported in which the symptoms pointed to leprosy, and individuals who had made a study of leprosy said they would recognize them as cases of that disease. The unfortunate part of the disease is the prognosis. One case has been reported as cured. In the treatment of these tumors I do not believe that removal would be of much benefit, even if they were sarcomatous, and yet some authors, among them UNNA, claim that individual tumors of this kind have been removed, or may be removed without a recurrence of them. There is an absence of scar tissue in the space of those which have disappeared spontaneously. In the case of those removed by the knife there is quite large scar formation.

DOCTOR F. L. NEWMAN: It would be interesting to know whether, in DOCTOR BIDDLE's case, after the formation of a tumor and its spontaneous disappearance, there has been a recurrence. I remember reading a paper some time ago in which the author reported sixteen cases, and he spoke of one case in which all the tumors disappeared and did not recur. Of the sixteen cases they all ended fatally but one.

DOCTOR MCGRAW: This fact is not peculiar about the tumors disappearing. Such a result has been observed not infrequently. BILLROTH reported a case of tumor in the neck which disappeared. I recall a case of my own in a patient who lived in Indiana. The patient was a woman who had some tumors on the forearm and others in the abdomen. I gave a very bad prognosis. Some three or four months after I heard from her physician to the effect that most of the tumors had entirely disappeared, that those in the abdomen had lessened, and that she recovered. They grew again and the woman died. Physicians made a postmortem and found a multitude of round-celled sarcomas throughout the body. Now, the line between true tumors and benign tumors, such as fatty tumors—true growths of tissue and the infectious tumors like actinomycosis, is not strictly drawn as yet. We may discover infectious elements, as no doubt a great many pathologists claim to have discovered, not only in sarcomas but in carcinomas. We have many examples of certain diseases limited first to the skin, afterward developing into sarcomas. I have seen them continue benign for a number of years, and then develop into sarcomas. The question arises whether this disease may not have sprung from a long-continued irritation, just as we have carcinoma springing from a long-continued irritation. I would merely make one suggestion, namely, that possibly it might be worth while to make some cultures out of these tumors in order to see if any bacteria may be developed.

DOCTOR D. L. PARKER: I was much interested in the case reported at a meeting of the American Medical Association. It was discussed for a long time by many of the gentlemen present who make a specialty of skin diseases. The point that I wish to mention is the reference that DOCTOR BULKLEY made about the treatment. He firmly believed that the fluid extract of yellow dock would produce some modification of the process that affected the skin. He advised that the patient be treated a long time with this drug, combined with potassium acetate in fifteen grain doses.

DOCTOR ROBBINS: I want to refer to the case already spoken about as presented to the Section on Cutaneous Diseases at the meeting of the American Medical Association. DOCTOR BULKLEY said to me privately that the only man in that whole audience who diagnosed the case aside from himself was DOCTOR CARRIER.

DOCTOR ANGUS McLEAN: I have been very much interested in this case. When I first saw this man he was very repulsive looking. At the time DOCTOR BIDDLE suggested the idea of operating it was with considerable reluctance that it was undertaken. The tumors were well defined. When the first one was removed the integument was closely approximated and healed very rapidly. The subcutaneous tissue appeared very natural and the circulation was good. The disease seemed to be confined entirely to the skin, and always seemed to keep close to the epidermis. Whether the disease originated from an internal or external infection it is impossible to say. I am satisfied that the removal of the tumors has made the patient much more comfortable and much more presentable as regards his appearance.

DOCTOR MAASS: This disease and the case that DOCTOR BIDDLE has reported are in many respects very interesting. As I understand the history of the case it commenced at the ankle-joint, and was at first an entirely local disease. This isolated and single deposit, however, only continued for a certain time. The disease suddenly spread and eruptions appeared all over the body. At this stage the correct diagnosis became possible. We have here, again, an example of how difficult it is to recognize a malignant disease in its early manifestations, and how important it is at the same time. We always are indignant and wonder that we are not yet able to recognize a carcinoma of the stomach, or even of the mammary gland, early enough to make the removal complete and successful. Indeed, there is no reason to wonder. The disease discussed by DOCTOR BIDDLE develops right under our eyes, and remains unrecognized until it is too late for a complete removal. Can this rapid generalization be due to external causes, such as clothes and the irritating finger, and therefore might have been prevented by antiseptic dressing at the primary seat? If it was distributed in this way I believe it hardly would have spread so rapidly. More likely the infecting agent gained access to the circulation, and was almost at once carried everywhere. If the infective material disseminates all over the skin, it must pass through the lungs to reach the arterial current. Is it not strange that under such circumstances the lungs and all the other organs remain intact except the skin? Certainly it is strange, but it is not our only experience of this kind. A very similar example we possess in the tubercle bacillus. If it gets into the circulation it selects usually bones and joints, and hardly ever the liver. If this is the proper explanation of the generalization, as it seems to me, we can expect everything from isolating the first and single place of infection by antiseptic dressing, but only from complete removal as a preventive of generalization. Another point of interest. The spontaneous disappearance of these tumors may not speak absolutely against their malignancy. At the last meeting of the German Surgical Society at Berlin, **Doctor Koenignin** reported a case of angio-sarcoma which disappeared in one of his patients. The diagnosis was verified by microscopical examination. As pointed out above, we cannot expect by applying dressings to prevent generalization. I also doubt whether it will be possible to destroy the first deposits by ointments or antiseptic fluids.' From the macroscopic description given by **Doctor Biddle** the first changes take place in the vessels and their endothelium. Now, can we reach them by external appliance if it is impossible even to make the epithelial layer of the skin antiseptic, as has been shown by many experiments. Also with this end in view, early extirpation in the nongeneralized stage would be advisable.

Doctor Biddle: As **Doctor Newman** says, I think cases are on record wherein all the tumors have disappeared and have not recurred. In regard to the treatment, as I stated in the paper, during the prefungoid formation no treatment was attempted. I desire to emphasize again the point brought out by **Doctor Carrier**, that it is not possible, as **Doctor McGraw** has suggested, that these tumors are entirely due to irritation.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, NOVEMBER 2, 1899.

The President, GEORGE A. KIRKER, M. D., in the Chair.

Reported by WALTER J. CREE, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor A. N. Collins read a paper on "Tetanus, with Report of Cases." (See page 25).

Doctor Wyman: The paper was very interesting and seems to cover all the ground. I can take no exception to the utterance of the essayist unless it be that tetanus is usually a preventable disease. In the abstract this is true. The most serious form of this disease becomes manifest within ten days after traumatism, which is usually a trivial wound, as from nails perforating the shoe and wounding the foot. It frequently occurs in men working in the street. In every case surface soil seems to be a causative factor. In street railway accidents, when the body is considerably dragged in the street, there is a wide extent of surface exposed to infection, which frequently takes place. Infection may have taken place, and the physician, although he uses antiseptic washes, bichloride, et cetera, promptly, will frequently find it too late, for infection has already taken place. Tetanus also occurs as an epidemic. This would lead us to believe that the soil in certain sections is more infectious than that in others. I recently saw a case with DOCTOR MEDDAUGH twelve to fourteen days after the patient had injured himself, as he explained, by slightly bruising his leg. The man sprawled upon a broken picket causing a slight abrasion between his ankle and knee. When I saw him the wound had seared over, and it had received no attention until symptoms of tetanus came on. In regard to the treatment, the mixture of carbolic acid and alcohol by hypodermatic method gives us as much promise as anything. I would use this method were I called upon to treat a case tonight. General attention should be paid to elimination, and the toxin diluted by the use of normal saline solution. I have seen but two cases recover, and one of these is not yet out of danger. I do not believe the manifestation of tetanus uniform in character. The convulsions are sometimes local before general. I would like to ask the essayist to tell, in closing the argument, what are the probable methods of infection in the puerperium. In the south this disease occurs frequently in infants, and I believe this can be accounted for by infection of cords by being pinched off by filthy midwives.

DOCTOR MAASS: Antitetanic serum is preventive but not curative. An animal inoculated with antitetanic serum before infection with tetanus is immune to the latter, while if the serum is administered after infection it seems of no benefit. EHRLING explains this in the following way: The toxin formed by the germ is easily and eagerly absorbed by the nerve cells, and is out of the reach of antitoxin. Although the antitoxin inhibits the growth of the germs, it is not antidotal to their product—the toxin. The toxin is already in the nerve cells when the disease manifests itself. The frequent infection from firecrackers can be explained by their having dirt upon them from being thrown into the street, or in manufacture. Tetanic germs are anerobic and will not grow upon the surface, but must be forced into the flesh so as to cut them off from the air. Tetanus has been frequent in Detroit this year. Of three cases which a friend had, one recovered from the use of antitoxin and two died.

DOCTOR HISLOP: The paper was a practical one. Tetanus most frequently originates from punctured wounds, as inflicted by stepping upon a rusty nail. My treatment has been to cleanse the wound promptly with potassium permanganate solution. Should suppuration take place, I use charcoal as a dressing.

DOCTOR WALKER: It is pretty clear that tetanus may arise from lacerated and punctured wounds coming into contact with dirt, but it is hard to explain how the infection takes place in the puerperium. I removed a tumor from a woman with a nine months' baby. She partly recovered, but eventually died from tetanus. The infection was possibly conveyed by means of dirt.

DOCTOR MULHERON: The paper was short but comprehensive, and brought out a number of points for discussion. I have never been able to understand how tetanic infection takes place in the puerperium. Obstetrical literature contains reports of such cases. My conception is somewhat different from the other observers. The symptoms in the two cases reported in the paper of the evening are dissimilar. Is it not possible in the case of the woman that the diagnosis was incorrect? Puerperal fever is very varied in its manifestations. I have had a case wherein the temperature persistently remained at 104° to 105.5°, but the postmortem did not reveal the slightest evidence of inflammation of the peritoneum. There was no evidence of infection through the genital tract. Is it not possible that in the author's case the symptoms could be attributed to cerebrospinal meningitis? In the case of meningitis the heat center is certainly involved.

Doctor Dwyer: I have recently seen described in the current medical literature a method of treating tetanus by submerging the patient, all but his eyes and nose, in warm water, afterwards introducing one ponnd of pulverized sulphur and gradually adding hot water up to 120°. The author of this article claims to have been successful in all of his cases with this treatment.

Doctor Milligan: I have had little experience with tetanus. The awfulness of the symptoms of this disease was impressed upon me when I was a small boy, an associate of mine receiving a wound upon the nose and afterward developing tetanus from it. The germ of tetanus is anerobic and is found in dirt. Infection from the use of fireworks is caused by the implantation of the germ into the flesh by the force of gunpowder. The tetanus bacillus does not become generally distributed throughout the body but grows locally. The toxin of the germs, however, is carried into every part of the system. Antitoxin administered prior to infection acts as a preventive. Some contradict this. Solution of iodoform in olive oil injected is said to prevent tetanus. It has been said that germs grow in dry iodoform but not in its solution. It has been shown that urine of the tetanic patient will produce tetanus if injected into an animal.

Doctor Campbell: I saw one case following abortion. Another physcian saw the case for two days but refused to treat it longer. A marked symptom was convulsions in the muscles of the back. Many cases develop after the wound is healed. Local treatment in some cases therefore is useless. In tetanus, temperature is frequently subnormal. In very high temperatures I would think the use of ice and cold applications would be indicated. A very slight noise, as a movement on a carpet, usually sets the patient into spasms.

Doctor E. B. Smith: The paper and discussion have been interesting. Cases of tetanus are very acute sometimes. I have in mind a case wherein a certain physician found fault with the treatment and wanted to employ antitoxin. He came down town to have the treatment exploited in the newspapers. Hardly had the newspapers been printed when the patient was being taken to the cemetery in a hearse. We all know the cause of tetanus. It usually originates from wounds of the hands and feet, the kind of wounds not making much difference. It is not easy to diagnose until late in the disease. I have one case on hand now which is over the convulsive state. At first, patient was hysterical. There are cases of rheumatism that simulate tetanus. I should like to emphasize the point brought out in the doctor's paper that all wounds, however trivial, especially of the hands and feet, should be treated surgically. I would incise a wound if I thought it necessary. I performed a postmortem on one case of tetanus and not a single portion of brain tissue or spinal cord was found affected.

DOCTOR MEDDAUGH: I have had experience in only one case, which seems to be a typical one. The trauma occurred ten to twelve days ago. Patient injured himself slightly on the ankle by falling upon a broken picket. The next morning he had a stiffness in his neck as though he had taken cold. He felt tired and was easily fatigued. The muscles of the jaw became stiff. There was difficulty in swallowing and in two days lockjaw developed. There was opisthotonos and the lockjaw continued four or five days, when it began to relax. His jaws can now be opened three-fourths of an inch. There were no mental disturbances whatever. He becomes worse if allowed to talk or if there is noise around him. Preceding a disturbance there is irregular action of the mucous membrane of the mouth and eyes. I gave little medicine, simply a dose or two of bromide and small doses of calomel. There was some nausea present and specks before the eyes. Temperature was normal. At first he was fed per rectum, later by the mouth. I should think the treatment referred to by DOCTOR DWYER would be indicated. Nothing will restore equilibrium to the nerves as well as hot water. We have seen this illustrated in the treatment of convulsions. In tetanus there seems to be hyperesthesia. I would use that remedy if I had another case to treat.

DOCTOR BACON: Tetanus is probably the most fatal of all complications of injuries. The history of this disease is remote. I have had seven or eight cases. One patient was a wood-chopper in whom tetanus developed from compound fracture. In this case thirty grains of antimonial powder were given, causing slight nausea but producing diaphoresis. Another case resulted from a bull having torn the sphincter ani muscles. The patient died. Another case was an infant ten days old. This patient also died. Another resulted from mutilation in a street car accident. It has always been strange to me how certain muscles governed by a set of nerves are affected when other muscles controlled by nerves from the same center are not. I have been wondering why none died of asphyxia. The paper reminds me of still another case, a woman who miscarried at three months. She developed stiffness of the jaws, marked opisthotonos and a temperature of 108.5°. She recovered. I believe the feet and hands should be kept as clean as any other part of the body. Infection may occur through handling horses, coming in contact with horsehair. This should make physicians careful about driving when going to see a puerperal case.

DOCTOR HONNER: It is not well to always agree with the essayist of the evening. There is doubt in my mind about DOCTOR COLLINS' first case being tetanus. There is not much doubt about the second case. In the puerperal case the author does not lay much stress on trismus. I should have doubt of the case being tetanus without pronounced trismus. I would doubt if any case could be cured by hot water and mustard. Statistics of all wars show that a large number of soldiers die from tetanus.

DOCTOR MULHERON: Trismus is not invariably pathognomonic of the presence of the germs of tetanus. Trismus essentium may be due to other causes, as from that irritation produced from the overlapping of the occipital and parietal bones.

STATED MEETING, NOVEMBER 23, 1899.

THE PRESIDENT, GEORGE A. KIRKER, M. D., IN THE CHAIR.
REPORTED BY WALTER J. CREE, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR J. J. MULHERON read a paper entitled "Rigidity of the Maternal Soft Parts During Labor." (See page 1.)

DOCTOR CARSTENS: Although not at present engaged in the active practice of obstetrics, I see at times in consultation a number of cases of rigid os and perineum. These cases are quite often due to an error in diagnosis, the woman not having arrived at the proper time for labor. When labor is premature there is always more or less muscular rigidity. I have seen a large number of cases wherein neuralgia of the womb was present, and the pains simulated those of labor. In some of these cases the woman and her friends think that labor is on hand and send for the doctor or midwife and urge them to do something. Too often by digital manipulation and medicine the labor is brought on, and of course rigidity of the soft parts is a natural result. I have been called to such cases, and by the administration of suitable medicines the pains were allayed, and labor would not take place for several weeks. I have heard of cases wherein pains lasted for three or four days, and several dilators were used to hasten the relaxation of the os. If these patients were given, say twenty-five grains of sulphate of quinine, they would in all probability be easy the next day. I maintain that a large number of these cases of rigidity are due to the labor being premature, and the parts not being in a natural condition for dilatation. Ergot, when carelessly or thoughtlessly used, will cause rigidity of the os. There are some cases wherein there is an old laceration of the cervix, and the scar tissue allows the os to be dilated more or less all the time. Pains may be felt and a physician is called, who on examination finds the os dilated quite a little, and he thinks labor is imminent. Digital manipulation or ergot may be used with the result of a rigid os. I think that a rigid os *per se* is not a very common occurrence. Rigidity of the os occurs more frequently in the very young and strong primiparæ, also in the weak, feeble woman the os is tardy in dilating. I administer cocaine hypodermically. Inject one-sixteenth of a grain into the cervix, and repeat the injection in one-half hour if necessary. I have used atropine, one-hundredth of a grain, in the same manner. Chloral injected into the rectum is good, say one-half drachm in two ounces of water. Too large a quantity of water should not be used, as it is liable to be expelled. Chloroform is a very important drug to use, but the patient should be put completely under its influence. Many physicians are afraid to use enough chloroform, but I do not think there is any danger in its administration during labor. Some cases of rigidity are due to a faulty position of the uterus, and this can be remedied by changing the posture of the woman, or by bimanual manipulation. I agree with what the doctor has said about episiotomy. I do not think that this useful little operation has been done often enough. Sometimes a lacerated perineum is chargeable to the physician. The case may be progressing slowly, and the patient suddenly have a strong pain and the child is expelled with a possible rupture of the perineum, the physician not being at the bedside at the time. In all these rigid cases I think chloroform should be used. I believe thoroughly in what the doctor has said about the perineum. Massage of the perineum is useful when the patient is under the influence of chloroform. The application of the small forceps will often assist dilatation and prevent rupture. Physicians are apt to be too much in a hurry to terminate labor, but no more so than the patient.

DOCTOR HOYT: It is a physiological law that during the last few days of pregnancy there is a change in the soft parts, whereby labor is facilitated. I think that too early interference is often a cause of rigid cervix. The judicious application of a pair of small forceps will often prevent rupture of the perineum.

DOCTOR MCPHERSON: In my practice, when I find a rigid perineum the application of towels soaked in hot water has seemed to give the needed relaxation. It may be a fancy of mine, but the results have been good.

DOCTOR SUMMERS: I have found that in cases of rigid os small doses of morphia will give relief, and the patient may go for a couple of days before labor takes place.

DOCTOR STEVENS: I believe that many cases of rigidity are due to a neurosis. Some patients will jump if you touch them anywhere on the body, and a vaginal examination is impossible unless under chloroform. For rigidity of the cervix I have found that a stream of hot water thrown against the cervix is very efficacious. I commend the application of hot towels to the perineum. Chloral used hypodermically is useful, and three grains will give surprising results. This dose can be repeated if necessary. I think the act of vomiting has a beneficial result on a rigid cervix. I have used ipecac to bring on emesis, and the results were good. In regard to the perineum, I believe that the shoulders rupture it more frequently than the head. I believe that certain manipulations of the perineum will prevent rupture. The chin should be forced down on the sacrum until the occiput engages under the symphysis, and then the chin should be brought down from the sacrum. If the head is advancing too rapidly it should be pushed back by the thumb.

DOCTOR MILLIGAN: One of the most important things to do is to impress the patient that you are competent to take charge of the case, and thus will assuage her nervousness and favor relaxation of the soft tissues. My sheet anchor in labor is chloroform. For rigidity of the cervix morphia gives relief, and if the pains are false ones the patient is soon at ease. I believe in supporting the perineum.

DOCTOR WYMAN: It has been interesting to watch the gradual encroachment of surgery on this field, until recently under the general practitioner almost exclusively. The modern accoucheur should be well qualified in all branches, and be ready to perform any operation that may be necessary. The modern accoucheur should have a suitable table, proper light, and all the facilities as if for a surgical operation. Institutional obstetrics seem to be more successful than private. The custom of women going to hospitals to be confined is growing each year. I believe that the perineum can be supported. I do not see how a physician can do the best for his patient when she is on an ordinary bed. I would not attempt to deliver a woman instrumentally unless on a table with good light.

DOCTOR MAIRE: Although not having engaged in obstetric practice for a number of years, I am always interested in it. My experience taught me that whenever vomiting occurred naturally labor would soon follow. Vomiting relaxes the soft parts, and with this in mind I have often given emetics. I do not think it proper to speak about supporting the perineum, but think that the head and shoulders should be supported. Large shoulders often cause a rupture when the head has passed in safety. I do not think that the physician should be blamed when rupture occurs. It is important to see that the head is flexed and follows the proper pelvic curve. Massage of the perineum is very useful in causing relaxation.

DOCTOR ZIEGENFUS: In every case of rigid os coming under my observation the woman was thoroughly scared. I have found both chloroform and morphine useful in these cases. I would like to ask the doctor as to why sexual abuse will favor rigidity of the cervix? In the majority of our obstetrical cases nature will do the work, but the doctor must be on the alert for accidents. Chloroform and massage of the perineum will usually overcome all rigidity. I would like to know what excuse we can give to the people for performing the operation of episiotomy.

DOCTOR MULHERON: In regard to the doctor's question as to what excuse we can give to the people for performing the operation: When engaged to attend a woman in confinement we are supposed to give her the benefit of our scientific knowledge, and if we do not we are not doing our duty either to the profession or the people. Midwifery has made great advances during the past twenty-five years. The operation is a very trivial one, and can be done with either knife or scissors, and it is much better to have a clean incised wound than a rough uneven tear. It is not absolutely necessary to suture the cut, as the parts naturally fall into apposition. Obstetrical cases should be raised to the dignity of surgical ones. People do not object to any attention shown the patient, but rather appreciate it. In regard to the effect of sexual abuse on the cervix: The cervical tissue is erectile in character, and during coition if it does not receive the emolient effect of the male fluid, which allays the congestion incident to coitus, it remains in a state of chronic congestion, and hypertrophy is apt to follow. The cold douche will produce the same effect.

EDITORIAL ARTICLES.

THE HOME TREATMENT OF CONSUMPTION.

DOCTOR WILLIAM OSLER recently presented a paper on this subject before the Johns Hopkins Hospital Medical Society, and conveyed a a number of practical points that should be published world-wide. After stating that in ninety-five per cent. of the cases seen by physicians, the patients are unable to afford treatment away from their homes, he says: "Arrest or cure of tuberculosis is a question entirely of nutrition, and of the measures by which the general nutrition of the body may be encouraged, the first and most important is fresh air. The quality of the fresh air in our large cities may not be very good, but it is the best that a large proportion of our patients can get to breathe, and it is a great deal better than the atmosphere of the overheated, ill-ventillated rooms in which many of them live." He advised as follows: "Take the almanac and count off the hours of sunshine. In winter cut off two hours in the morning and one hour in the evening, and for the rest of the day the patient must be out of doors. If there is no possible arrangement for life out of doors, the patient must be put in a room with southern exposure, and the bed moved into the sunshine with the windows wide open. If there is a balcony or veranda with a good outlook toward the south, it should be arranged for the patient; if not, a shelter can be put up in the yard at a very moderate cost. On a well padded lounge covered with a couple thicknesses of blankets, the patient sits or reclines all day. Only on blustery, stormy or very rainy days is the patient to remain in the house. No degree of cold is a contraindication. This continuous open-air life at rest is the most powerful influence we possess today against the fever of tuberculosis. Secondly, we must consider the diet. In any long series of cases the patients who do well are those who take plenty of food. Each case must be dealt with separately, but as large a quantity of food as possible should be given, even when possible insisting on overfeeding or stuffing." The above directions agree with the most approved modern principles relating to the treatment of this disease, and their adoption is strongly urged.

AN APPEAL.

President W. W. Keen, of the American Medical Association, has officially* brought to the notice of the profession the renewed attempt to secure antivivisection legislation in the District of Columbia. For the third time there has been introduced into Congress the bill for the "Further Prevention of Cruelty to Animals in the District of Columbia," the real intent of which is to prohibit vivisection and to influence in the enactment of similar laws by the several state legislatures. Although the last two Congresses have refused to pass such a measure, the situation is attended with some uncertainty and a degree of solicitude, since the Committee on the District of Columbia has already twice favorably reported the bill.

In appealing for aid to the members of the medical profession it is unnecessary to refer to the deep and everlasting obligations under which scientific research has placed us and humanity at large for most if not all the really useful and life-saving medical knowledge we possess. Neither is it needful to fire the imagination with a portrayal of the great loss that a ban upon vivisection would surely entail. As has been remarked before in this journal, the experience in England has shown that, whatever allegations may have been made at the outset by the promoters of this measure, no compromise short of total abolition of experimentation upon animals will ultimately satisfy their demands. The expediency of active opposition *now* becomes apparent. It is desirable that we should individually and officially warn our United States senators and representative lest they vote away for a mess of pottage—a silly and unpractical sentimentalism—our birthright to an unfettered progress.

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* *The Journal*, Volume XXXIII, Number XXVI.

CHILDBEARING AMONG THE ESQUIMAUX.

An eyewitness[1] relates, in the *Pacific Medical Journal*,[2] the account of a childbirth among the Esquimaux in Northwestern Alaska, which is interesting both as showing their customs and by contrast with the sympathy and help afforded our own women by physicians, nurses, midwives, and loving friends. According to this narrative, a woman, about to be confined, is supposed to be unclean, and is obliged to leave the house and go entirely alone into the brush or woods to complete as best she may the act of parturition. There the parturient woman has already prepared an oval snow pit, two feet deep by six, and thrown around the margin a few spruce boughs as a wind-break. A thin layer of dried grass has been scattered about and on it a reindeer skin. To ameliorate the 30° to 40° Fahrenheit below zero she has also provided a smoky fire of twigs. On her knees, with buttocks resting on her heels, she endures the pangs of the three stages of labor, after which, with a piece of sinew, previously prepared from the hock of a carabou, she ties the cord closely to the umbilicus and cuts it with a serrated flint. She next washes the struggling babe in the snow and places it among the folds of her "parka" or waist, after which, leaning upon a staff, she slowly makes her way from the unclean pit to another which she had prepared about fifty feet away. After remaining away for "five sleeps," during which time she has had no food except a piece of dried fish, she returns to her house, whereupon both she and her husband take a bath, change their undergarments if they possess them, and are again supposed to be clean. Referring to these rigorous conditions of childbirth the writer remarks that "the rate of mortality of the babes born will agree favorably with our own death rate, and the same may also be said of the

[1] C. C. Gleaves, M. D.

[2] Volume XLII, Number XII.

mother." As helpless as the poor Esquimaux mothers are, natural instinct has been good to them in instilling into them habits of personal cleanliness and freedom from septic infection administered by kind friends with better intentions.

ANNOTATIONS.

A LEAGUE OF DEADBEATS.

If there is any one thing that stirs up a doctor's righteous indignation more than another, it is the attempt to escape debts. Charity forms no small part of a worthy doctor's disposition, and were it not genuine many needy but unfortunate fellow creatures would suffer because unappreciative spongers had quenched the spirit. It is currently reported that a society is being organized by city hall employes who are liable to be garnisheed, and that three hundred dollars have already been subscribed to test the garnishee law. As legislation that will catch such fellows as these is one of the aims of the Mercantile Association of Michigan, mention of which was made in a recent issue, it is in the interest of the profession to further the association in every proper way. For the sake of your own purse join and work in the local council in your vicinity.

CONTEMPORARY.

MEDICAL MEETINGS AND MEDICAL PAPERS.

[BOSTON MEDICAL AND SURGICAL JOURNAL.]

Some of us go to medical meetings; some of us write medical papers; a few of us do both, but a large proportion of us do neither. The reasons for these various attitudes of mind are no doubt very complex, and we have no desire to enter upon the task of analysis at this time. We should, however, like to call attention to a few palpable facts, which are constantly in danger of being ignored or forgotten. In the first place, papers which are admirable for publication are oftentimes most unsuitable to read at medical meetings. Medical meetings come usually in the evening; the audience is made up of men who have no doubt been busy during the day, and are hoping against hope that some slight recreation may attend their effort to be present at the meeting in question. They come possibly to learn something new, or to say something in discussion, but they do not come to be bored by detail, or kept waiting for conclusions which might as easily be given at the end of fifteen minutes as at the end of an hour. Primarily, therefore, papers should be concise. If the attention of any considerable body of men is to be maintained, it is desirable that it be not taxed beyond half an hour. In this regard we have observed an improvement within the past few years; the tendency has grown at most of our societies to reduce the length of papers by special request to the writers, with a consequent gain in attendance. Infinitely worse than mere length, however, is redundancy of detail. In certain frames of mind in which, unfortunately, a doctor is very apt to be at the end of a day, details are almost unbearable. They rouse an inward revolt, which bids fair to put the sufferer into the category of the habitual nonattendants. This is due to the fact that minute details are almost never in place at medical meetings, and yet how often we hear them to the absolute confusion of our mental faculties. What idea can it convey to be told the minutiæ of the daily treatment of a patient, temperature in fractions of degrees, pulse, respiration, urine, with its albumin and sugar and urea, and all the shades of change which mark the progress of disease? This is all extremely important as a matter of record, and as the basis of future publication, but as a means of profitable entertainment at a medical meeting it fails most lamentably. To begin with, no one can follow such details; they make no mental impression on the auditors, and even if they did the results are all the audience wants to know. Let the reader state, if he wishes, how assiduously he has studied his case, but let him also prove the effects of his study by giving his matured conclusions on the occasion of his public appearance at the meeting. Such a habit should not be difficult of cultivation, and, if universally practiced, we have no question the medical meeting would quickly acquire an interest and influence which are now often conspicuously lacking. One other suggestion is the discussion. Why so many words? we frequently wonder. Why weary an already tired audience by an often irrelevant and frequently very long narration of personal experience, which might quite as easily be condensed into a few well chosen sentences? From many sources a protest has gone up against this bane of the medical meetings. It is becoming more and more the custom to limit the discussion by each speaker to five minutes, with no detriment, we venture to think, to its effectiveness. We need good discussion, but let it be short and to the point. If we could shorten our papers, cut out extraneous detail and insist on concise discussion, we should no longer be called upon to bewail the proverbially poor attendance at the social and professional gathering which we call a medical meeting.

MEDICAL NEWS.

THE INTERSTATE MEDICAL RECIPROCITY MOVEMENT.

THE movement to establish interstate reciprocity in the practice of medicine, or the Detroit movement, as it is also called, which was inaugurated during the past year by a committee appointed from the Wayne County (Michigan) Medical Society, is now well known all over the United States, and members of the various state boards and authorities throughout the country, the medical press, medical societies and individual physicians, are encouraging and assisting the committee to bring about the desired reciprocity. A large and valuable material has accumulated, and the committee intends publishing a résumé of this important correspondence for the information of the profession and of the laity, thereby not only showing its appreciation of all who have lent a helping hand, but also for the purpose of inducing colleagues to join in the movement, and further its aims by work and suggestion.

The committee of the Wayne County Medical Society is a permanent one, and as such asks for the continued assistance of physicians in the United States, collectively and individually. The difficulties which present themselves in the path of medical reciprocity may be great, but they are not so great that a united profession cannot overcome them.

It will be remembered that the Wayne County Medical Society, during the incumbency of Doctor Robert H. Honner as president, held a special meeting to consider the advisability of appointing a committee for the following purposes: (1) to determine the best way to promulgate the idea of a National Health Board; (2) to consider the steps which, in time, might lead to a uniformity of requirements for the license to practice medicine throughout the United States. The idea of calling the meeting originated with Doctor Louis E. Maire. It was taken up by the society with enthusiasm, and a committee of five was appointed as follows: Doctors George G. Gordon, E. B. Smith, F. D. Summers, E. H. Troy, E. Amberg. Doctor Gordon was elected chairman and Doctor Amberg secretary of the committee. The committee recognized that the first effort should be directed toward establishing uniformity of requirements for license to practice, and after careful consideration of the *status praesens*, concluded that, as in all sound developments, the process of evolution should be followed. The most natural course appeared to lie in the direction of interstate reciprocity, that is, to induce those states which practically had the same requirements for license to practice medicine to enter into reciprocity. The committee felt that if nothing else but this were attained in the near future, much good would be accomplished. However, the committee regarded this measure as only a step in the right direction. In this way not only sufficient time would be gained by all parties concerned to adapt themselves to the necessary progress, but the hope was entertained that all or nearly all would get in line and make the movement of the committee their movement. It may now be stated that this hope has been realized to a great extent.

In order to ascertain the feeling of officials who are directly charged with the responsibility of carrying out the laws governing the license to practice medicine, circulars were sent to such authorities in the several states and territories, inviting them to join in the movement, and to fill out a blank containing seven questions (The Physician and Surgeon, October, 1899). The responses to this circular were so prompt and favorable that the committee were enabled to make the first report to the society on September 14 (The Physicia and Surgeon, October, 1899). A second circular, in which was incorporated this report, was sent to medical societies and to the medica press, and the lay press as well, asking endorsement of the movement. In response to this many of the leading journals have given the movement favorable mention editorially, and fifteen medical societies have thus far endorsed it.

The committee now announce that their purpose is so clearly defined and so well understood by profession and laity, that they may be now considered a center for the exchange of ideas concerning the progress of the movement. The results of the efforts of the committee will be published from time to time.

A SETBACK TO OSTEOPATHY.

It is a satisfaction to note that, although the massage fraud, masquerading under the name of osteopathy, was successful in having a favorable law enacted in Michigan through the credulity of our legislature of 1897, and even prevailed in hoodwinking the lawmakers of 1899 into granting an exemption of that cult from the operations of the Chandler act, the osteopathic fad has recently met its Waterloo in Kentucky and Georgia.

In the former state Harry Nelson, an osteopath, and graduate from the osteopathic institution at Kirksville, Missouri, sought to enjoin the State Board of Health from proceeding against him for practicing medicine without a license, which they had refused to grant. The Board of Health, after having sent a committee to Kirksville to investigate the reputability of that institution, declined to endorse it or issue certificates entitling its graduates to registration. Judge Sterling B. Toney, of the Law and Equity Court of Jefferson county, held that there were only two points requiring a decision: (1) whether the law was constitutional; (2) whether the State Board of Health had endorsed the Kirksville institution as a reputable medical college. In regard to the first point, he ruled that the medical law was constitutional; and as to the second, that the State Board of Health had taken the proper steps to ascertain its reputability, and that, having done that, their decision was final and conclusive.

But for the absurd exemption in the Chandler act, osteopathy would be shut out of Michigan on identical grounds.

In Georgia the intriguers from the Kirksville institution met no more resistance in securing what they wanted from the last legislature than they did from Michigan solons, but encountered an unexpected obstacle in the person of Governor Candler, who promptly vetoed the measure. The reasons given are so clear and cogent that they are reproduced here:

"I withhold my approval from this bill because, aside from the objection that it advertises one particular school—the American School of Osteopathy of Kirksville, Missouri—there is no necessity for such an enactment. It provides among other things for the creation of another medical examining board in the State. There are already three of these boards and any graduate of any lawfully chartered medical college may go before either of them, present his diploma and be examined. If he passes an examination satisfactory to the board, a board the members of which are selected because of their eminence in the profession and their skill in medical science, he is authorized to practice medicine anywhere in this State, and apply any treatment he may deem best, including the methods of osteopathy. If he is not a graduate of a reputable medical college and cannot pass a satisfactory examination in the usual branches of medical education, he ought not to be licensed to engage in the practice of medicine."

CONCERNING APPELLATIONS.

AT a reception tendered to the members of the Marion County Medical Society at the Central Indiana Hospital for the Insane, Indianapolis, December 5 ultimo, Doctor C. B. Burr, of Flint, read a very practical paper entitled "The Care of the Recent Case of Insanity," the conclusion of which is as follows:

"Permit me to urge the abandonment in conversation, or discussion in medieal papers on insanity of all terms referring to out-of-date theories as to its origin; also expressions which savor of flippancy or contumely. Early hospitalization of curable cases is frequently hindered and recovery retarded or perhaps prevented by the fancied disgrace or stigma attaching to the admission of mental infirmity. If physicians refused to permit thoughtless or cruel appellations to be used in their presence and invariably presented the medical point of view to the friends of patients, a generation or two would see the practical overturning of old and absurd notions respecting the nature, causation and consequences of insanity. Indiana has done wisely in christening her institutions State Hospitals."

THE PARIS MEETING OF PHYSICIANS.

THE American National Committee of the Thirteenth International Medical Congress, which convenes at Paris August 2, 1900, are active in their endeavor to have the profession in America well represented at the meeting. All Doctors of Medicine are entitled to membership by making the proper application and forwarding five dollars to Doctor Henry Barton Jacobs, of Baltimore, Maryland, the secretary of the committee. In due time cards of admission to the Congress will be forwarded to all applicants. Members desiring to present papers will please forward the title and a résumé thereof before May 1, 1900, to the secretary of the particular section at Paris before which it is to be read.

A PENALTY FOR SUBSTITUTION.

The evil of the practice prevailing among some pharmacists of furnishing a different drug than the one specified in the compounding of a prescription, either as a matter of convenience or from selfish financial reasons, has long been suffered by the profession, but that this substitution can be severely punished by our courts has only lately been established. A Chicago druggist, Edward Otto, charged by Fairchild Brothers & Foster, of New York, with having knowingly substituted another preparation for their essence of pepsin, was recently perpetually enjoined by Judge Kohlsaat, of the United States circuit court, from ever repeating the offense and taxed with the costs, amounting to five hundred dollars. This decision will be received with great satisfaction not only by physicians and manufacturing chemists but by a long-deceived public as well, and will undoubtedly act as a deterrent with unscrupulous druggists.

BOSTON MEDICAL LIBRARY JAN 1 1903

NECROLOGY.

Doctor Edward Batwell, of Ypsilanti, Michigan, for many years one of the leading physicians of Washtenaw county, died of disease of the digestive apparatus December 26, 1899, aged seventy-one years. He was born at "Fortlands," the family estate, in the county of Cork, Ireland, June 30, 1828. At the age of thirteen he was indentured to an apothecary, and in 1846 graduated from Trinity College, Dublin, becoming, one year later, a Fellow of the Royal College of Surgeons, London. With this excellent medical training he immigrated to America, coming to Detroit. At the outbreak of the civil war he was mustered into the service October 24, 1861, and left Ypsilanti for the front as surgeon of the Fourteenth Michigan Infantry in February, 1862. His professional attainments were early recognized and in June, 1862, he had charge of one of the hospitals at Pittsburg Landing following the battle of Shiloh. Toward the latter part of the war he was detailed in charge of the transportation of wounded to New York, and June 7, 1865, he was breveted Lieutenant Colonel (medical corps) of United States volunteers and mustered out of the service July 18 of the same year. He then returned to Ypsilanti, and resumed the practice of his profession. In 1866 he was instrumental in the organization of the Washtenaw County Medical Society, being one of its charter members. He was actively interested in the welfare of this society from the date of its inception and contributed many valuable papers thereto. Five children—two sons and three daughters—survive him. As a citizen, Doctor Batwell commanded the respect of all who enjoyed his acquaintance. As a physician, he held a high place in the esteem of his confreres.

* * *

Doctor William Alexander Hammond died suddenly from heart disease at his residence in Washington, District of Columbia, January 5, in his seventy-second year. He was born at Annapolis, Maryland, August 28, 1828, and received his early education at Harrisburg, Pennsylvania. He was graduated in medicine from the

University of New York in 1848 and later took a clinical course at the University of Pennsylvania. In 1849 he entered the medical service of the United States army as assistant surgeon but resigned in 1860 to accept the professorship of anatomy and physiology in the University of Maryland. At the beginning of hostilities in 1861 he again offered his services to the government and his rise was rapid. In 1862 he was commissioned Surgeon-General. The idea of the army ambulance corps and of the army medical museum are credited to his fertile brain. In 1864, he was courtmartialed, having been charged with some irregularities in awarding certain contracts, and was dismissed from the army. Soon after he established himself in New York City in private practice and three years later became professor of mental diseases in Bellevue Hospital Medical College. He occupied a similar chair in the University of New York. In 1882 he assisted in founding the New York Postgraduate Medical School. By a bill passed in 1879 he was restored to his rank as Surgeon-General in the United States army and retired without pay. His professional methods were at one time considered questionable and cast a shadow upon his ethical standing. As a medical author he achieved distinction through "Physiological Memoirs;" "A Treatise on Hygiene;" "Wakefulness;" "Insanity in its Medico-Legal Relations;" and by conjoint authorship of a work entitled "A Treatise on the Diseases of the Nervous System." He was also instrumental in founding the *New Nork Medical Journal* and was editorially connected with the *Quarterly Journal of Physiological Medicine and Medical Jurisprudence.* As a retired army officer, he was buried in Arlington National Cemetery with military honors.

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Doctor Henry Hodgen Mudd, aged fifty-five years, of Saint Louis, Missouri, died November 20, of general vascular disease and aortic regurgitation resultant from attacks of blood poisoning experienced several years ago, which led to double pneumonia and to septic rheumatism. He was born at Pittsfield, Illinois, and educated in the public schools of Saint Louis and at Washington University. Naturally he commenced the study of medicine at the Saint Louis Medical College under the tutelage of his illustrious uncle, Doctor John T. Hodgen, graduating in the class of 1866. After a year spent in clinical work at the City Hospital he accepted the appointment of Acting Assistant Surgeon of the Thirteenth United States Infantry, stationed in Montana. Relieved from military duty, January 21, 1869, he became associated with his uncle in practice. In 1872 he became connected with his alma mater as prosector to the chair of Anatomy, becoming its Dean in 1890, after filling the chairs of promotion. It was largely due to his efforts that the consolidation of the Saint Louis and Missouri medical colleges was affected as the medical department of Washington University and in 1899 he became Dean of that department. His continuous service as a teacher of medicine covers a period of twenty-seven years. As a writer upon the subject of his specialty—surgery—he was well and favorably known. He leaves two sons and two daughters as the fruits of his marriage, September 20, 1869, with Miss Elizabeth H. Albright of Saint Louis.

Sir James Paget, one of the most distinguished surgeons and scientists which England has produced this century, died recently in London at the advanced age of eighty-six years. He was born January 11, 1814, at Great Yarmouth, and educated at Saint Bartholomew's. In 1836 he entered the Royal College of Surgeons and secured his fellowship in 1843, and in 1875 became president of that institution. From 1884 to 1895 he was vice-chancellor of London University. Sir James Paget won his title in 1871 by the brilliancy of his attainments in surgery and scientific discovery. His professional relations to the royal family date from 1863, when he became surgeon to the Prince of Wales. In 1878 he was appointed sergeant surgeon to Queen Victoria. He was chosen fellow of many other universities and institutions and received the highest distinction from foreign scientific bodies. As a writer Sir James made many valuable contributions to medical bibliography, prominent among them being "A Report on the Results of the Use of the Microscope," issued as early as 1842; "Lectures on Surgical Pathology," first published in 1853; and "A Pathological Catalogue of the Museum of the College of Surgeons."

* * *

Doctor David L. Huntington, lieutentant colonel, retired, in the United States army, died in Rome, Italy, December 27. He was born at Charlestown, Massachusetts in 1834, and was a graduate in arts from Yale College, and in medicine from the University of Pennsylvania in 1857. He was appointed assistant surgeon in the regular army at the opening of the civil war and promotion was so rapid that he became medical director of the Army of the Tennessee and accompanied General Sherman on his march to the sea. For several years he had charge of the medical museum in Washington and edited "The Medical Records of the War." He has been on the retired list since April 10, 1898, and has made his residence abroad.

* * *

Doctor John Stamford Sayre, of Monticello, Missouri, formerly past assistant surgeon in the United States navy, died November 30, at his home. He was a graduate from Princeton in 1878 and received the degree of Doctor of Medicine from the medical department of the University of Michigan in 1881. Three years later he entered the navy as assistant surgeon and remained with the Asiatic squadron until he was retired in 1897, on account of disease contracted in the service.

* * *

Doctor Charles Inslee Pardee, of New York city, who, for twenty-five years was Dean of the University Medical College, died very unexpectedly November 3, of heart disease at his residence in that city, aged sixty-one years. Doctor Pardee was graduated from the University of New York in 1860. During the civil war he served as surgeon and afterward became an active member of the Loyal Legion. He was a director of the Manhattan Eye and Ear Hospital at the time of his death.

MINOR INTELLIGENCE.

Judge Swan, of the United States District Court at Detroit, recently fined Carl Hardt and Martin Julius fifty dollars for smuggling twenty-four ounces of phenacetine from Canada, the duty upon which would be one dollar and sixty cents.

Majors Victor C. Vaughan and Charles B. Nancrede were recently presented with silver medals by the city of Ann Arbor for surgeoncy service in the Spanish-American war. Doctor Vaughan has just been appointed Surgeon-General of the Veterans of the Spanish-American war.

The Union Medical Society of Northern Michigan was recently organized at Belding. The union comprises the counties of Ionia, Montcalm and Mecosta, and over thirty physicians resident therein were present at the meeting. Doctor A. L. Corey, of Stanton, was elected president, and Doctor H. L. Bower, of Greenville, secretary.

Doctor Elmore S. Pettyjohn recently issued a very handsome brochure, illustrative and descriptive of The Alma Sanitarium. The management of The Alma is strictly in harmony with scientific medical practice, and the attractions and advantages possessed by the institution are worthy of investigation by physicians having patients for whom a change of scene is desired.

The call has just been issued for the third annual meeting of the National Pure Food and Drug Congress to be held in Washington, District of Columbia, beginning Wednesday, March 7, 1900. The committee urge a large attendance, as special pressure will be brought to bear upon Congress to secure the passage of the "National Pure Food Bill" introduced by Mr. Brosius, of Pennsylvania.

The Berrien County Medical Association met at Saint Joseph on December 14. The following officers were chosen for the year: President, Doctor Fred R. Belknap, of Niles; vicepresident, Doctor Henry V. Tutton, and secretary, Doctor Charles N. Sowers, both of Benton Harbor; treasurer, Doctor Hattie A. Schwendener, of Saint Joseph. The next meeting will be held at Niles in February.

Doctor Beverly Drake Harison, secretary of the Michigan State Board of Registration in Medicine, has filed a report in the executive office at Lansing, which shows that during the first three months of its existence the board re-registered nearly three thousand physicians; that $3,287 were collected; that the expenses to January 1 were $1,066.60; and that a balance of $2,220.40 is on deposit in the office of the State Treasurer.

At the recent annual meeting of the Kalamazoo Academy of Medicine the following officers were elected: President, Doctor O. F. Seeley, Climax; vicepresidents, Doctor A. H. Rockwell, Kalamazoo, and Doctor C. H. McKain, Vicksburg; secretary, Doctor H. Ostrander, Kalamazoo; treasurer, Doctor O. B. Ranney; librarian, Doctor E. W. Van Deusen; censors, Doctor A. W. Crane, Kalamazoo, and Doctor J. M. Elliott, Hickory Corners.

AT the joint board meeting of the trustees of the Michigan asylums for the insane, held in the Eastern Michigan Asylum at Pontiac January 18, twenty members were present. Medical Superintendent Edwards, of the Kalamazoo asylum, read a paper entitled "The Future of Insane Asylums in Michigan;" Medical Superintendent Christian, of the Pontiac asylum, considered the question "To What Extent are the Boards of Trustees Justified in Aiding Pathological Work?" and Medical Superintendent Munson, of the Traverse City asylum, contributed a paper on the subject of "Tuberculosis in Asylums." Other features of the meeting were a luncheon and a reception.

THE Northern TriState Medical Association (Michigan, Ohio and Indiana) convened in semiannual session at Adrian, Michigan, Tuesday, January 16, 1900. Doctor Roswell Park, of Buffalo, delivered the address in Surgery, and Doctor Victor C. Vaughan, of Ann Arbor, discoursed upon Typhoid Fever. The program contained the titles of twenty-one papers, some of the more important of which will be published in future issues of The Physician and Surgeon. The following officers were elected: President, Doctor Miles F. Porter, of Fort Wayne, Indiana; secretary, Doctor H. D. Wood, of Angola, Indiana; treasurer, Doctor F. C. Mason, of Hillsdale, Michigan. The next meeting will be held at Montpelier, Ohio, sometime in July next.

THE Calhoun County Medical Association held the largest annual meeting in its history at Battle Creek, December 5 ultimo, under the presidency of Doctor George W. Green, who delivered an address on "School Hygiene Limited to Its Effects on the Vision of the Pupils." A goodly number of papers were read and discussed, and the meeting was concluded by a banquet in the evening, at which Doctor A. W. Alvord presided as toastmaster. Officers for the ensuing year were chosen as follows: President, Doctor G. D. Bangham, of Homer; first vicepresident, Doctor L. M. Gillette, of Battle Creek; second vicepresident, Doctor L. S. Joy, of Marshall; secretary, Doctor W. H. Haughey, of Battle Creek; treasurer, Doctor R. M. Olin, of Battle Creek. A resolution was unanimously passed censuring the Board of Regents of the University of Michigan for requiring the medical staff of that institution to treat patients and perform operations thereon practically free.

RECENT PUBLICATIONS.

REVIEWS.

PELVIC INFLAMMATIONS.*

THE method of treatment of pelvic inflammations, which constitute by far the majority of pelvic troubles, has been a subject of great interest as well as of great concern among surgeons for some time. Medical meetings have witnessed and medical journals have published the warmest discussions for and against the vaginal route. The author of this work is favorably disposed to the vaginal method in many conditions in which many surgeons of unquestioned ability prefer the abdominal route, and it must be admitted that he gives good grounds for his belief. That the writer is also a worker the book well shows, for it bristles with new thoughts and practical points presented with the confidence of experience.

*By William R. Pryor, M. D., Professor of Gynecology in the New York Polyclinic; Cosulting Surgeon to the City (Charity) Hospital; Visiting Surgeon to Saint Elizabeth Hospital, New York City. With 110 illustrations. Price $2.00 net. Philadelphia: W. B. Saunders, 1899.

MECHANICS OF SURGERY.*

This is a novelty among surgical works. That a layman should presume to write a book of instruction to physicians is not astonishing, but that he should succeed so well as the present author has is very unusual. We have been furnished with pamphlets and numerous catalogues of surgical apparatus, but never before have we seen a work of this kind gotten up with so great accuracy and completeness, and systematically arranged. The author has enjoyed unexcelled advantages in pursuing his task, and, in addition, has obviously taken great pains. It is well worthy of a place on the physician's shelves.

*By Charles Truax, Chicago, 1899.

A TEXT-BOOK ON OPHTHALMOLOGY.*

This volume is one of a number of foreign standard works, for which the publishers have laid American physicians under great obligations. We were first made acquainted with it in 1892. Since then five German editions have been issued, the last of which, the seventh, is again offered to the English speaking medical public. The author is sytematic in the arrangement of the facts, and has been ably assisted in this edition by the plain and clean-cut text of the translator. Illustrations are numerous and well described. The translator has also inserted new matter upon the subjects of heterophoria and cycloplegics, and an appendix of illustrations of instruments.

*By Doctor Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized translation, revised from the seventh enlarged and improved German edition by A. Doane, M. D., Assistant Surgeon in the Ophthalmic and Aural Institute, New York. D. Appleton & Company, New York, 1899.

LOVELINESS.*

Neither author nor publisher could hope to receive favorable mention of this little book from a medical journal, since the selfish motives underlying the story and the narrowmindedness from which it sprung, ceased long ago to obtain recognition there. Obviously the simpering little story is written with the object of provoking sentiment against the use of dogs for scientific purposes, but the unreal and ridiculous coincidences in it can appeal only to unthinking and degenerate minds. It may in justice be said that it fairly represents the arguments usually put forth by the friends of the antivivisection movement.

*By Elizabeth Stuart Phelps (Mrs. Ward). Houghton, Mifflin & Company, Boston and New York, 1899.

ELEMENTS OF SANITARY ENGINEERING.*

Although this book is intended more especially for a technical class of students, as a descriptive and explanatory text on sanitary engineering it will be found instructive to all others interested in sanitary science. The subject is well handled, and while not exhausted the work will nevertheless meet the needs of the majority.

*By Mansfield Merriman, Professor of Civil Engineering in Lehigh University. John Wiley & Sons, New York.

SELF-EXAMINATION FOR MEDICAL STUDENTS.

This list of questions covers every phase of medicine and surgery, and will be found very helpful, both in review of the several subjects and in preparation for final or special examinations.

*Published by P. Blakiston's Son & Company. Philadelphia, 1899. Price ten cents.

REFERENCES.

Lea's "Series of Pocket Text-Books" will hereafter be bound in red cloth, heavy beveled edge boards, and also in flexible red leather and with round corners and margins trimmed to facilitate carrying in the pocket. The price of the leather bound book will be fifty cents in advance of the cloth bound, which is $2.25.

Saunder's "American Year-Book of Medicine and Surgery," which is announced to appear in February, will be issued this year in two volumes, one treating of general medicine and the other of general surgery. Each volume of six hundred pages will be complete in itself, and sold either separately or in sets, as may be desired. Price per volume, cloth, $3.00 net; half-morocco, $3.75 net.

"The International Medical Annual" for 1900, issued by E. B. Treat & Company, New York, promises to be better than any of its predecessors. The prospectus contains an array of distinguished authorities as editors and contributors to the various departments of medicine and surgery comprised in the work, and the publishers claim that it will contain new matter of practical interest concerning almost every known disorder. The price will be $3.00 net.

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ORIGINAL CONTRIBUTIONS.

ADDRESSES.

THE ANNUAL ADDRESS BEFORE THE GRAND RAPIDS ACADEMY OF MEDICINE.*

By HERBERT MAXON KING, M. D., Grand Rapids, Michigan.

[Published in The Physician and Surgeon exclusively]

The Academy of Medicine has completed another year of its corporate existence, and in honor of the occasion we have met tonight to elect new officers, to briefly review what has been done in the past, and to celebrate with befitting sociability the commencement of another year.

Before we adjourn to the banquet which awaits us, it might be well, I think, to pause a moment, both to consider results so far obtained and to devise, if possible, methods for bettering them in the future.

In the first place, then, our results, obtained, so far as they refer to scientific matters are, within our limitations, not wholly unsatisfactory; situated as we are, more or less remote from the centers of learning, and to a great extent lacking opportunity for original research, both in matter of clinical material and that of efficient laboratory facilities, our society must of necessity resolve itself into an exchange where current opinion and the original work of others may be freely discussed and criticised, and where our various applications of the suggestions of others may be recorded to our mutual advantage and benefit.

*Delivered by the Retiring President, February 6, 1900.

To this end, the original papers and reports of cases, particularly the latter, with the more or less exhaustive discussions which have followed, have, it has seemed to me, aimed with good effect. But, while the results in this respect have not been wholly unsatisfactory, it must nevertheless be admitted that much good material has not been utilized, and many good opportunities have been lost. There is a constant cry from certain quarters that our resources are meager, yet, a moment's thought will convince anyone that every fortnight sees enough unimproved resources among the medical experiences of our members to supply an economical medical society with profitable discussion for a year, and until this material is more thoroughly sifted, we cannot claim wholly satisfactory results. Admitting then, that we cannot make very considerable contributions to the realm of experimental medicine, we can, at least, every one of us, add value to our meetings with very little effort, and certainly great profit, by putting a little more enthusiastic cooperation into this subject of "Reports of Cases and Discussions Thereon;" and this, after all, is the chief purpose of our existence as a society.

Scarcely of less importance, and I am inclined to think in the minds of some, at least, of very *first*, is the duty which we owe our society of keeping each other in the strict path of ethical virtue. It is a tendency common to all men in every sphere of life to put a disproportionate zeal into the examination and criticism of their neighbor's conduct and the devisement of laws for him to obey. And there is, I think, quite as strong a tendency on the part of the neighbor to resent with equal zeal, what appears to him an unauthorized interference.

Now, I am firmly of the opinion that in the great majority of cases in which this question is involved, and in which "hot-headed" and acrimonious discussion ensues, detracting materially from the boasted dignity of our proceedings, there is fundamentally no difference of opinion, and consequently no room for argument. The immutable law of right must and will be acknowledged by every sane person, and can *never* in reality be opposed to the law of expediency. Hence, when we come to look for an explanation of the bickerings which have too often marred the order of our meetings, ruffled the tempers of our members, and cast discredit upon our proceedings, we have no difficulty in finding it either in a lack of parliamentary courtesy on the one hand, or in an overstrained and egotistical sensitiveness on the other, or in the incompatible combination of the two.

The only rules under which we, as a society, live are those clearly and distinctly laid down in the code of ethics of the American Medical Association. That code forms the basis of our constitution and by-laws and stand loyally by it we *must* or surrender our charter. That code of ethics is as broad as the golden rule, and no *honest* man or woman can practice medicine outside the pale of its far-reaching principles. Hence, the only criticism which can in any sense be raised against the individual member, the applicant for membership, or the body as a whole, within the jurisdiction of the Academy of Medicine, must of necessity, be based upon some violation of this code, either in part or whole; and such a criticism or inquiry pointing to the same, from whatever quarter it may arise, and in whatever language it may be couched, demands the immediate recognition, and, however painful it may be, the full, honest and disinterested consideration of the society.

The difficulty has been in the past that what has appeared a discourteous, or at least an unceremonious and blunt method of opening the question, has blinded the better judgment of a certain proportion of the society to the real question at issue; and in many instances protracted discussion far beyond the time which the question would ordinarily demand. And thus, too often by far, the *object* is lost to sight in the vehement consideration of the *subject*, a danger, by the way, which probably threatens all deliberative bodies.

This difficulty may in future be avoided by constantly bearing in mind that a question of this character can have but a single relation to the society, and that summed up in the one problem, Is it compatible with the letter and spirit of our code of ethics? There can be no safe compromise in this regard, and friendship, personal interest or false conservatism can have no place in such discussions.

A certain amount of criticism has from time to time arisen within the society from two sources, because of inconoclasm and pessimism on the one hand, and too vigorous optimism on the other. It is perfectly natural that these two elements should be opposed, and at times should come into considerable friction; but after all, the best health of the society as a whole demands the presence of both within its body, the one as an inhibitory, the other as a motor force.

Remove from this society its notorious inconoclast, and its center of inhibition would be paralyzed. We well know what results in such a case—the old illustration of the clock with the weights removed. On the other hand, take from us our optimists and no less disastrous a result will follow. Both elements are essential to our best development, indeed to our very existence, and we cannot afford to part with either. Each, no doubt, will continue strenuously to maintain that the other's presence is ruinous to the society's best interests. But so long as neither extreme secures a balance of power, nothing but good can result from such a condition of things; they are both necessary ferments.

The membership of the Academy of Medicine is small compared with that of many like organizations in cities of the size of Grand Rapids; but, though small, it is vigorous, and would much prefer to remain small than to increase its membership by compromise of its principles. Let us ever bear in mind, and take pains in spreading abroad, a *knowledge of the fact that our doors are broadly open to all honest* physicians, whose educational qualifications have given them a *legal right* to practice medicine; who, avoiding sectarian adjectives, allow themselves to be known merely as *physicians*, whether they choose to employ hypothetical doses of inert drugs, the laying on of hands or heroic doses of mercury, in their effort to heal the sick, certainly a broad enough policy, to which no honest mind can take exception. If we have been a "fighting society," as has been so often averred by those who have looked on from without, let us see for what we have fought! and in answering this inquiry, I can use no better words than those of DOCTOR JACOBUS in his inaugural address before the New York County Medical Society some years ago: "We have fought against bigotry, charlatanism, ignorance, illiberalism and selfish or unprofessional conduct. On the part of members of the profession * * * * we have fought for non-sectarianism in medicine, for higher and better medical education, for a 'golden rule' policy or guide of ethics, and one by which we can and do discipline the guilty whether high or low." To the maintenance of this just policy let us continue to lend our best efforts, and if at times our standards are threatened, let us by all means continue to fight for them. Nothing but good can result from such a fight, and so long as we maintain them, we need have no fear for the ultimate results to the society.

One more subject which I wish briefly to bring to your attention at this time and I am done. It is that of the duty which as the representative medical society of this community we owe to the public. That duty demands that we shall take a more active interest in the proceedings of the Board of Health; as in all matters pertaining directly or remotely to the public health; whether it be in the placarding and quarantining against the spread of infectious diseases, or the consideration of the question of an improved water supply. Laxity and inefficiency on the part of a health officer in this city, reflects to a very great extent upon every medical man and woman dwelling within our municipality. If reform is needed in this direction, then it should certainly emanate from such a body as ours; and while our criticisms and protests, together with our advice and suggestions, may be apparently unheeded, it is none the less our duty to submit them when mature consideration shall have shown us the necessity; not, if it can be avoided, by publishing brave resolutions in the secular press, though that should be done if other means fail; but by addressing our expressed opinions directly to those in whose power it lies to correct abuses, and remedy evils that threaten the community in which we live. Our society should stand in relation to the public, in the attitude of a physician to his patient.

And now, in conclusion, let me again urge the necessity for a more active participation on the part of the members of the Academy in the scientific discussions at our meetings in the consideration of such subjects as relate to the public health; whether it requires commendation or condemnation of the officers of the Board of Health upon which question we have no right to shirk responsibility, and finally, in our entire cooperation looking toward the maintenance of the high standards which we as a society defend.

MEMOIRS.

TREATMENT OF SUSPECTED SPECIFIC PRIMARY LESIONS.

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Some few years ago, in a paper read before the Michigan State Medical Society, I stated substantially that the observation of a considerable number of cases of late secondary syphilis—private and clinical—in which cauterization of the primary lesion, together with specific constitutional treatment, had been practiced in that stage, followed by irregular development of secondary phenomena and grave protracted and recurring symptoms—such as destructive ulceration, disfiguring scars, paralysis—had strengthened me in the belief that not only is the cauterization of the initial lesion, with specific general treatment at that time, impolitic and unwise in complicating diagnosis, and futile as a rule in preventing or arresting constitutional infection—and therefore unnecessary—but also hurtful by delaying or obscuring the ordinary evolution of phenomena in the second stage, and adding to the danger of saturation, adenopathy, gummata, and sudden explosive outbreaks followed by a greater tendency to malignancy and injury to deeper tissues, bones, viscera, and nervous system, besides rendering less clear the indications for treatment in secondary and late stages.

I recognize the lack of uniformity in the so-called incubation, evolution, and "stages," of syphilis, and the terms are used constructively as usually understood in the literature of the subject.

Since that time I have made a special effort to investigate the history of all cases coming under my observation, and to treat those

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*Read at the Adrian meeting of the Northern Tri-State Medical Association.

under my care, while in the primary stage, in such manner as not to interfere with the usual order of evolution. With most unbiased wish to confirm or disprove the correctness of such clinical propositions, I have become more firmly convinced, not only that cauterization or excision in the great majority of cases complicate and render more difficult diagnosis, and are not only needless and futile in curing syphilitic lesions, but detrimental to the favorable course of the disease by delaying appearance of secondary phenomena, leading to a false confidence in the patient, and often in the physician, that the patient had a noninfecting chancre, or that his syphilis had been "aborted" by "rapid cure." On the strength of either assumption persistent systemic treatment is not followed, and at some later time, it may be months or years, he breaks down from the suddenly active development of latent foci of disease. His youthful vigor may have resisted the effects of the poison until some other condition, perhaps exposure or overwork, impairs his physical forces, lowers his nutrition, and he finds his lymphatics enlarged, syphilides—irregular in appearance, unsymmetrical—gummata, ulceration, paralysis or other sequela, and with any or all of these results of uneliminated or undestroyed virus, he may become morbid and melancholy.

This is no fancy sketch. The carefully taken history of four-fifths of all the cases in secondary and late stages coming under my notice, in private and clinical practice, discloses some or all of these features with various other symptoms. Of course physicians should not be held responsible for all these unfortunate results. Many such patients attempt to engineer their own cases from various motives, and resort to traditional methods in vogue with their lay friends, or the advice of a drug clerk, until alarmed or discouraged by failure of efforts for relief, they seek a physician only when the local condition has become greatly aggravated, diagnosis obscured, and the situation generally unpromising. Yet, having finally consulted a physician, they expect him to restore them to health in a short time without interruption of their occupation, without cooperation or sufficient care on their part, and with a general lack of apprehension of the truth that syphilis is a debilitating disease.

Most cases of syphilitic infection are of venereal origin. Not all these patients, however, are undeserving our sympathy. Many are more sinned against than sinning, and are as innocent of responsible cause as they are ignorant of results. And notwithstanding the popular matter-of-course belief that all cases of syphilitic infection are venereal, a doubt of mediate infection is scarcely consistent with the measures we take to guard against sepsis in general medicine and all branches of surgery. **Bulkley**, in "The Syphilis of the Innocent," gives over nine thousand authenticated cases of extra-genital nonvenereal origin. Public opinion holds the disease as discreditable to the patient, and this leads to concealment of most cases when known, and unwillingness to seek honest aid and advice. The public, too, often errs doubly in its ready-made diagnosis, shunning the unfortunate subject of acne or eczema, while the real syphilitic patient goes unsuspected and unchallenged. The province of medicine is to cure or relieve patients, and, regardless of the character or origin, every humane impulse and professional obligation —to say nothing of the protection of public health and future lives— demand that these unfortunate cases be treated with as much consideration as any others needing medical aid.

The modern prognosis of syphilis is much more favorable than it was considered even a quarter of a century ago, and it may now fairly be claimed to be a curable disease in cases under intelligent control from its first appearance, and if treatment is efficient in making good this claim, the management of the case in the earliest stage is of the utmost importance. Indeed this early care may be said to bear almost as important relation to subsequent course of the disease and results, as does the "first aid" to wounded on the field of battle. And, if every syphilitically infected subject could apply as promptly a suitable disinfectant dressing to the point of infection, as is done with the wounded in modern civilized warfare, we might expect less need for subsequent treatment in any stage, and the fulfillment of the dream of enthusiasts—the complete obliteration of the disease— which even with present methods, is believed to be becoming milder. But unfortunately the victim of a syphilitic inoculation is not conscious of infection until the poison is disseminated, and the lesion appears as a marker of the point of entrance, and a local manifestation of a disease already constitutional.

What, then, should be done in the cases coming under the physician's care on first appearance suspected to be syphilitic, and what shall he direct when he has opportunity? First, the suspicion should be verified or disproved; in short, the diagnosis determined. And though many cases are easily settled by inspection and history, the character of many other lesions on genitals or elsewhere, is not determined even by an expert, at a single examination. Time is a necessary aid in deciding. And the treatment of the condition may begin tentatively without waiting for, indeed may assist in arriving at, a diagnosis and should be largely expectant.

It is not strange that the zealous medical attendant who strongly suspects he has to deal with a case of syphilitic infection, wishes to do something to arrest the disease; and it is perhaps to the inexperienced a not unreasonable thought to expect to prevent or abort the systemic disease by destroying this local sore, which is the only evidence of disease apparent, and which is actually infectious to others not immune, and presumably still capable of doing further harm to the patient who bears it. Unfortunately he can find in a few recent books some authority for the attempt to "abort" and "cure." Books with highly colored pictures of some kind of sores, though it is not stated whether they were chancroid or syphilitic, labeled "cured after" so many "inunctions" or "days," and the reader is left to infer that the "cure" was constitutional and permanent, and that the sore might not have healed if treated by simple antiseptic measures; and he asks, as thousands have done before, "Why not cauterize or excise or destroy in some way, this local sore and seat of infection, whatever it is, and begin at once with specific medication appropriate to antidote this virus whether the disease prove to be syphilis or not?"

The question is a fair one, and deserves a fair answer. And first, if the questioner could feel assured that his patient not only loses nothing by delaying active measures, but in the opinion of those best qualified to judge, "wins a waiting race," hè would more patiently bide his time for a better opportunity to begin specific treatment. His waiting need not be wholly inactive. The general health and nutrition should be looked after while development is settling the diagnosis. The local sore will heal with simple treatment and its behavior will be instructive. If phagadena occur, appropriate means to arrest the destructive process should be used. If the sore present indications of a mixed or double infection all the more need for deliberate caution.

While no exclusive specific bacillus has been demonstrated in all syphilitic lesions, yet the investigations of DOUNÉ, HALLIER, KLEBS, LUSTGARTEN, FORDYCE and others who have recognized bacilli in syphilitic tissue, have established the belief that the specific virus of the disease is due to some microorganism and that it is steadily and constantly diffused from the point of infection to the whole body. TAYLOR, in an address before the American Dermatological Association in 1897, describes a carefully conducted examination of an excised chancre four days after its first appearance, finding marked changes in the condition of blood-vessels, with "distension of the perivascular spaces with small round cells. * * * Nearly every vessel examined, both arteries and veins, was in this way enveloped by masses of small round cells forming a sheath like a coat sleeve around the arm. Besides this condition of the perivascular spaces, there was a change in the endothelial cells lininig the arteries and veins which were swollen and seemed to be proliferating. In two or three places the process had gone on to such an extent as to produce thrombi of the medium sized veins. * * * The point deserving of attention is the extremely early and far-extending involvement of the blood-vessels. The microscope also showed how deep rooted syphilis is at the very beginning of the sore, having extended along the perivascular lymph spaces, and how futile, as experience has already shown, to attempt to abort by excising the primary sore. Apparently judging from the appearance of the vessels in this case their involvement begins before the apearance of the sore."

This contradicts the theory that the virus remains dormant at the point of infection for a considerable part of the first incubation referred to by CORNIL, and on the strength of which AUSPITZ, UNNA and others revived the practice of excision. But long before facilities or knowledge existed for histo-pathologic study of syphilitic tissue, clinical experience was acquired in testing methods of treatment. RIVES, twenty years before RICORD, maintained that cauterization or excision practiced soon enough, arrested further lesions. But at this time RICORD confounded the chancroid with the infecting chancre, and his success was probably with the noninfecting sore. For the last quarter of the century the opinion of the prominent syphilologists of this country and Europe have become stronger in opposing local or general specific treatment until after appearance of secondary symptoms. BERKLY HILL, JULIEN, BELHOMME, MARTIN, DIDAY, MAURIAC, BUMSTEAD, LEE, OTIS, VANBUREN, KEYES, CROCKER, GEO. H. FOX, HYDE and many others might be quoted, all agreeing substantially in the opinion that syphilis is constitutional when the sore appears and that cauterization or excision of the chancre is unavailing to prevent constitutional infection, or to diminish the subsequent severity or duration of the disease. Some of them, with DIDAY, JULIEN, DESPRES and KAPOSI, asserted that the later lesions were more grave and more frequent in individuals who had been put under the influence of mercury upon the appearance of the initial lesion. BUMSTEAD and TAYLOR, in fifteen cases in which they tested excision, never succeeded in arresting syphilis. GEO. H. FOX states that one of the earliest rules respecting the treatment of venereal disease which he had learned from an esteemed teacher was "cauterize every suspicious sore!" And he expressed the opinion that "this is today (1892) the guiding principle of many, if not most, physicians throughout this country, and I mention it only to condemn it," adding that as a result of his own observation and experience he should be rather inclined now to say "do not, as a rule, cauterize any suspicious sore;" that it is better to wait until all uncertainty is removed. HYDE in the present month, reaffirming his text-books, writes: "I am heartily in agreement respecting the so-called abortive treatment of initial scleroses by cauterization or any other than the simplest method of antiseptic treatment." KAPOSI, though proclaiming himself a unicist, "always deprecated beginning treatment before the outbreak of the eruption. * * * Indeed it is well to allow the eruption to develop more fully."

If, then, microscopic examination confirms clinical experience in showing syphilis generalized at the time of the appearance of the initial scleroses, and therefore beyond the reach of local arrest and destruction, we may properly ask—aside from the question of constitutional infection and treatment, and considering only the ulcer—why should a simple ulcer on the genitals, whether chancroidal, syphilitic, or both, not progressively destructive—perhaps with evidences of granulation—be treated differently from a simple ulcer of any other kind on any other part of the body, showing indications of repair? If the sore is not phagedenic, nor actively destructive nor complicated, no harm will come from waiting, for though it may exhibit physical characteristics common to either hard or soft chancre, the condition calls for nothing more locally than complete antisepsis, preferably dry. The true initial lesion of syphilis is generally benign and tends to heal spontaneously. Even the "mixed" lesions and the chancroid, when seen before active destruction or extensive undermining has taken place, and when thorough disinfection is practicable, promptly repair with simple antiseptic treatment in patients not debilitated, anemic or discrasic. Mr. Crockett's rule, "First be sure you are right, then go ahead," is a good one to observe here, and the rule I would urge is that nothing be done locally that will change the conditions, and no cauterization, so long as it tends to repair, and while there remains a doubt of the character of the lesion. First, for purpose of establishing diagnosis, and then if the diagnosis is practically assured to be syphilis, I would all the more adhere to the method because of my belief that active specific medication, local or general, at this time, tends to delay and obscure the ordinary evolution of subsequent phenomena, and we fail to get the full benefit, or to get it as early, of elimination by the skin in the efflorescence that marks the beginning of the second stage.

I am aware that the foundation for such belief rests rather on logical inference and clinical experience than on scientific demonstration. The exanthematous nature of the eruption, the protective character of the disease against reinfection establish a similarity—within limits—which Hutchinson assumes between syphilis and variola and scarlatina. But without pursuing the questions of etiology and pathology of these diseases, which have marked points of resemblance as of difference, may not the analogic argument hold good as to treatment? In the true exanthemata we regard the eruption as eliminative and endeavor to promote it, and the laity, as well as the profession, understand that an incomplete or prematurely receding eruption is unfavorable—whether it be a cause or a coincidence. It is in such cases that renal and other visceral affections occur, and it has been held to result from the additional elimination imposed on the kidneys, lungs and intestinal canal, through insufficient excretion of the skin. The products of desquamation in these cases are infectious, the crusts of variola especially so, and it seems a rational view that the efflorescence of the skin which marks the generalization of syphilis may be, to a considerable extent, an eliminative process. Whether the destruction of the syphilitic bacillus, and the cure of the disease, is accomplished by the process of phagocytosis and resistance, or antidoted by mercurial disinfection of the tissues, or the virus or its ptomains eliminated through all channels of excretion, I believe it will be agreed by physicians having the largest experience in treating syphilis that a free and pronounced eruption, occurring at about the average period, will be regarded as a favorable symptom; and not alone because it makes clear the diagnosis and indications for treatment, but because clinical observations shows these cases, other things being equal, to be more amenable to medication, and to run a more uniform and uninterrupted course to recovery. This being true, the patient should be informed of the probable and desirable occurrence of the eruption, led to expect it, and to be encouraged by its appearance as marking the favorable termination of the first stage of the malady, and as a hopeful augury for an equally favorable course of the subsequent stages, the active treatment for which should begin when the eruption is well developed.

These views are not offered as original or novel, but because the principles and data on which they rest, though well established and taught by most eminent authorities, yet seem to be so frequently disregarded that their reassertion and discussion appears timely and important.

THE X-RAY AS AN AID TO DIAGNOSIS.*

BY P. M. CAMPBELL, M. D., DETROIT, MICHIGAN.

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I SHALL not attempt this evening to discuss the different methods of producing x-rays. Whether they are produced from a high tension coil, such as the "Tesla" or "Ruhmkroff," with power generated by dynamos, or taken from an electric light circuit, or batteries, or generated by a static machine, the result is the same in diagnosis, provided the voltage is sufficient and the tube is a suitable one. A tube that gives satisfactory results with a static machine might, and probably would, be a dismal failure when connected with the terminals of a coil, while one that gives excellent results with a coil might be absolutely worthless if connected with a static machine. So far as results are concerned as between the static and apparatus of the coil type, it is doubtful whether there is any choice. Equally good results can be obtained with either under proper conditions. The choice of type of apparatus is largely a question of individual preference. My own preference is for the static machine, for two principal reasons:

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*Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

(1) Because I can and do use it for a vast number of other therapeutic purposes, and

(2) Because I have yet to learn of a case of severe destruction of tissue (so-called burns) when the static machine has been used. In all my work it is a powerful Holtz machine that has been used. The expense in either case is practically the same.

In the location of foreign bodies such as bullets, broken needles, or metallic substances of any kind, it leaves nothing to be desired. In fact, any dense substance such as broken glass, ivory buttons, et cetera, can be readily located in any part of the body.

In fractures of bones in the immediate locality of a joint where there might be a doubt as to the nature of the injury—as to whether it was a fracture, dislocation, or both—or in fracture where the joint might possibly be involved, it leaves nothing to be wished for.

In a great variety of cases such as bony exostosis, ankylosis of joints, osteo-myelitis, necrosis of bone, osteo-sarcoma, et cetera, it proves beyond a shadow of doubt the true condition of affairs. In that not uncommon, and if neglected fatal disease, osteo-sarcoma, a diagnosis can be made at a very early stage of the disease, and by repeated examinations the bone can be seen to disintegrate and melt away as it were before the growth of the invading neoplasm.

In aneurism of the vessels in the thoracic cavity, the rays throw a much needed light on cases in which we are sometimes in doubt. The pulsation can be plainly seen which marks the differential diagnosis between an aneurism and an opacity from any other cause. In other diseases of the chest the importance of this method should not be lost sight of, and the fact that the shadows of a preexisting pneumonia are thrown on a fluroscopic screen many weeks after a physical examination fails to show an abnormal condition, gives considerable weight to the assertion that tuberculosis can be diagnosed by this method much earlier than can be done either by the microscopical examination of the sputum or the usual physical methods. Be this as it may, there can be no doubt that it at least places one very important factor in addition to those we had before ROENTGEN'S discovery. In a diagnosis between pleurisy and pneumonia in children, which is much more difficult to differentiate than in the adult, the diagnosis of pleurisy can be made by the well-marked line of demarkation at the upper part of fluid, the line changing with the position of the child. In circumscribed abscesses of the pulmonary tissue, if of any extent, it also is an additional point to aid us in making a correct diagnosis. In diseases of the abdominal organs with such a depth of tissue, and owing to the fact that the contents of the bowels are quite opaque to the rays, it is a more difficult problem than in any other part of the body.

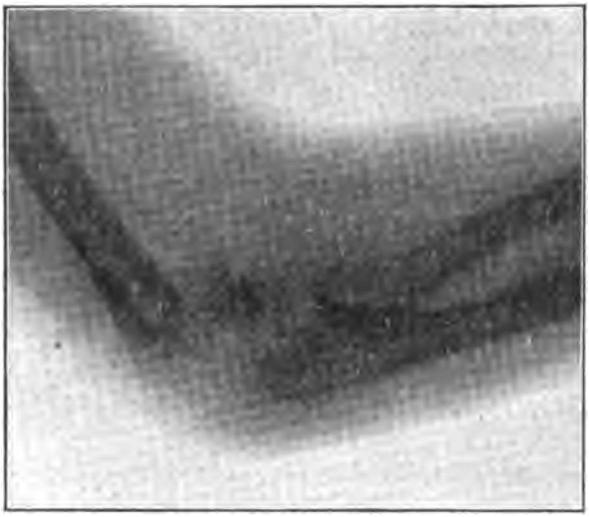
The question has frequently been asked if gall-stones can be found by the aid of the rays. I have made a number of tests with gall-stones after their removal from the body, and find that they are less opaque than a piece of liver of the same size. Consequently they throw no shadow on the screen and make no impression on a sensitive plate. Renal calculi, on the contrary, are decidedly opaque, and with care can, in a great many cases, be found. In cases of this kind the patients should be carefully prepared by evacuating the contents of the bowels as much as possible by purgation and enemas of water. In cases ot dilatation of the stomach, when the patient has any doubt of the condition, it would be a very simple matter to pass a flexible spiral wire electrode or sound well covered with rubber, and prove by a skiagraph that the stomach was in a dilated condition. However, in this region we have less reason to hope for perfect practical results than in any other part of the body.

In numerous cases negative results are very important in aiding us to form a correct diagnosis, such as the absence of fractures or dislocations, as to whether an ankylosis is bony or fibrous. When a fracture is followed by impairment or loss of function, it is very important from a medico-legal aspect. The report of a few cases of this kind might be of interest.

Case I.—J. B., a child four years old, had swallowed a penny nine months previously. A few weeks later he became ill, and gradually became thinner and weaker. The chief symptoms were an inordinate flow of saliva, and difficulty in lying in a supine position. He would lie in a prone position for hours, contentedly. The parents were quite positive in asserting that the penny had not been passed in the stools, and as the physician in charge failed to make a diagnosis, the idea prevailed that the penny was the cause of the trouble. About nine months after the date on which the coin had been swallowed, patient was brought to this city for examination. DOCTOR F. W. MANN was consulted, and he suggested an examination by the x-rays. A skiagraph was taken which disclosed the pins on his clothing, also an ivory button very distinctly, but not the penny. While this examination did not affect a diagnosis, it proved to the satisfaction of the attending physician that the lost coin was not the cause of the illness.

Case II.—J. B. had fallen from a ladder, and in his efforts to save himself thrust his arm through between the rungs, and struck that member with considerable force near the elbow. He was examined by two physicians of considerable experience who found immobility, crepitus, loss of function, and in fact all the symptoms of a fracture. He was a very fat man—the arm measuring fifteen inches in circumference—and owing to a weak heart an anesthetic was not given. The physician supposed the internal condyle of the humerus was the seat of the trouble, but in order to make an exact diagnosis brought the patient to me for examination. Two skiagraphs were made which showed there was no fracture, and the injury was wholly in the soft tissues.

Case III.—I show you here a case of fracture of the humerus wherein I think it would be utterly impossible to make out the exact position of the separated fragment of bone. The ideal method in treating a case of this kind is to immediately reexamine after the parts are replaced in apposition, in order to make assurance doubly sure that the parts are in perfect position. It is just in such cases as this that surgeons of national reputation make mistakes. It would surprise many of you to see the numerous cases that are being examined in our larger cities, wherein the most skillful surgeons of this country have failed to adjust the fractured bones perfectly.

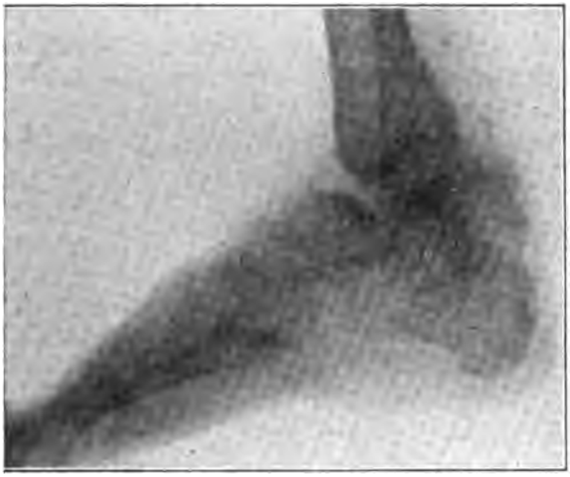


CASE III.

Case IV.—Frequently cases come for exact diagnosis when too late. The skiagraph I show you here illustrates such a case. The patient was recently brought to me by DOCTOR PIERCE, of Saginaw.

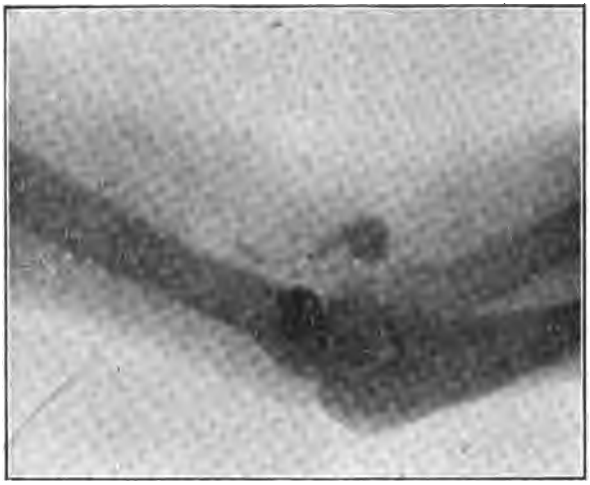
The injury had been received in jumping from a locomotive a year previous to the time of taking the skiagraph. A prominent surgeon at that time made a diagnosis of fracture, and thought the fragments were placed in apposition. The skiagraph shows displacement of fully an inch. Had this case been examined by means of the x-rays the surgeon could, and undoubtedly would, have replaced the broken bone, and the result would have reflected credit on himself, and instead of a partly crippled foot function could have been completely restored, and the patient would have been a walking monument of the surgeon's ability instead of a source of chagrin and disappointment.

Case V.—This is a case illustrative of a class in which it is impossible to get a history, but the skiagraph shows very nicely a fracture of the tibia and fibula. The case was brought for examination from the Children's Free Hospital. The mother stated that the leg was in that condition at birth. An operation a few days after the skiagraph was taken proved the case to be exactly as shown. In this case two weeks after the operation we examined it with the fluroscope through the plaster-of-Paris dressing. The parts were in perfect apposition, and union was evidently going on satisfactorily.



CASE IV.

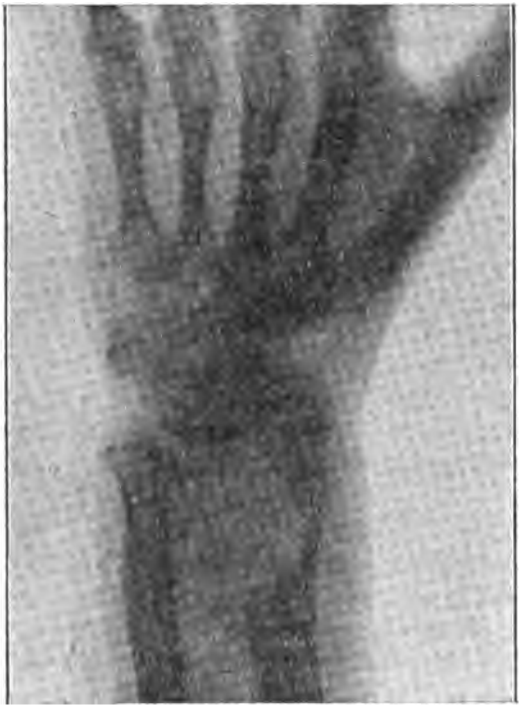
Case VI.—On August 28 F. S., a policeman, was brought to me for examination by DOCTOR ANGUS MCLEAN, of this city. He stated that he had been shot the evening before, his assailant standing six or eight feet from him. Fluroscopic examination revealed what seemed to be two bullets with some smaller dark objects located along the course of the bone. The bullet had entered the arm about five inches above the elbow. The direction was at right angles to the bone, while you can plainly see that the larger fragments of the bullet are quite close to the elbow-joint. There are two peculiarities in this case: (1) The bone was not fractured; (2) The small pieces of lead along the course of the bullet have the appearance of having been in a molten state when they entered the arm. This theory was advanced by an old hunter and seems to be as plausible as any that I have heard to the present time: That being so close to the revolver the bullet was practically in a molten state, and consequently failed to retain its integrity and fracture the bone. In a skiagraph the small pieces of lead can be plainly seen along the apparent course of the bullet close to the bone. In any event the x-ray was the only way to locate the bullet and show the exact condition of affairs. Later the two larger pieces were removed by **Doctor McLean**, and on being weighed were found to correspond closely to the weight of a thirty-eight caliber bullet.



Case VI.

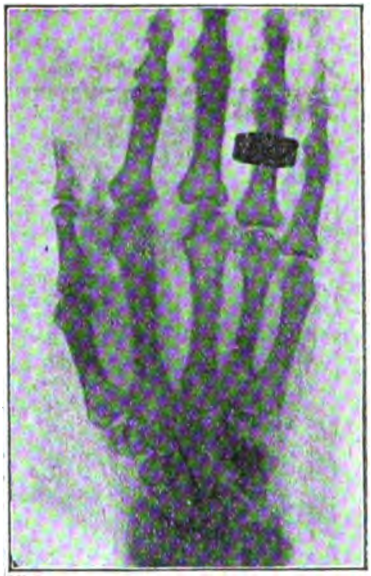
Case VII.—The skiagraph I show here illustrates a case of osteosarcoma of the distal end of the radius. The patient, Mrs. A., gave a history of slight pain extending over a number of years, accompanied by some enlargement. She first consulted a physician in April last. He gave it as his opinion that it was nothing serious, but qualified it by saying it might be. The patient's fears were quieted and she returned home. On November 10, while in this city, she consulted **Doctor H. E. Safford**, who, after getting the history of the case and making a careful examination, advised an examination by means of the x-ray. She was immediately brought to my office and examined by the fluroscope, and the skiagraphs shown taken. A diagnosis was readily made, and the arm amputated a few days later. Subsequently the diagnosis has been confirmed by a microscopical examination.

Case VIII.—A woman was smoothing down a tablecloth when she accidentally ran a needle into her wrist, eye first, which held a thread that extended through the wound. An effort was made to remove the needle by pulling on the thread, but it slipped out of the eye. The patient was sent to the city by DOCTOR CLIPPERT, of Delray, for the purpose of having the foreign body located by the x-ray. I made two skiagraphs at right angles, which demonstrated its position very nicely as shown in the engraving. They were sent to DOCTOR CLIPPERT on the following day, and he experienced no difficulty in extracting the needle. This skiagraph is of importance, as showing how plainly even small metallic objects are brought out in a skiagraph. Two negatives are always made at right angles to each other, which gives the distance from each surface. Then by measuring from some fixed point, such as the end of a long bone, the exact position may be learned.



CASE VII.

In view of these facts, are we as physicians doing our duty to ourselves or to our patients, if we refuse or neglect to use this means as an aid to diagnosis in every dobtful case? Is it any wonder that the laity sneer at us when we fail to make a correct diagnosis, and that they fall into the hands of quacks and charlatans who do not hesitate to make the most of physicians' blunders or incompetency? I believe in every case wherein there is a doubt that we should use every means in our power to make a correct diagnosis, and especially this means which is at hand in all our large cities, and in many of our smaller ones. Besides, as an element of safety to ourselves in a suit for malpractice, in very many cases it is essential that we have used all available means, and if we neglect so simple a one as this we are sure to be scored severely.



CASE VIII.

A FEW WORDS ABOUT FRACTURES.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN the course of time in which it has been part of my work to teach the principles of fracture dressing, there have come into my mind during my reading, and in observation of cases, certain points of interest and questions of importance, relative to not only the most successful way of teaching the treatment of these common surgical conditions, but to the proper means and methods of diagnosis and treatment of them as well; and it is to a few of these questions that I wish to give my attention this evening.

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* Read before the ANN ARBOR MEDICAL CLUB, December 13, 1899.

First of all, the question of terminology occurs to me. It is scarcely possible to open a modern text-book treating of fractures without being confronted with an elaborate classification of them in terms frequently misleading, ambiguous, inexpressive of the condition intended, and often absolutely incorrect. Almost invariably the terms simple and compound are used to designate the two great divisions of fractures. In the sense used, the terms are etymologically incorrect. A simple fracture is made to mean that condition in which the traumatism is limited to the bone—in other words, the soft parts surrounding are injured only slightly or not at all, at any rate the bone does not penetrate them: a compound one, that condition in which the soft tissues are so destroyed that actual communication exists between the fragments and the external air. According to such a classification, a fracture may be comminuted, impacted, or multiple and still technically, it is called simple: on the other hand, the smallest spicule from a bone broken at one place may penetrate through the soft parts and we have a compound fracture. Some of the older writers—MALGAIGNE, DUPUYTREN, HAMILTON—gave simple its true meaning, applying it to a single break, but more lately the term has been perverted. Compound has never, to my knowledge, excepting in one or two recent works, been used to designate a condition other than the one mentioned. It seems to me that the substitution of the terms closed and open for simple and compound is most advisable. These names are logically applicable to and expressive of the meaning intended, and under them we can classify all forms of fractures possible, excepting, of course, gunshot fractures which have always with reason, though technically they are open, been placed in a special class alone.

Then, too, the average student invariably is led to believe, at any rate he seems to have the idea (I may say that when students come to me, all the knowledge of fractures which they have has been derived from their text-book reading) that there is something mysterious about an open fracture. He fails to realize that the treatment of such a fracture as a fracture is exactly the same as the treatment of a like ~~closed~~ one, that the destruction to the soft parts is simply an accidental complication, just as infection in a wound temporarily inhibits conservative healing of the wound, but in almost no way affects the ultimate repair. The complication must be attended to, of course, but it does not pervert the principles applicable in treating the fracture. True, oftentimes we are unable to carry out the measures desirable, because of this destruction of the soft parts, but in spite of it we must not fail to recognize what is necessary and attempt to do it with modifications.

After all, what harm does the open condition of a fracture occasion? None by its mere existence: potentially it may do much because it means partial devitalization of tissue which predisposes to infection, which in turn is antagonistic to repair, but which by no means renders repair impossible. I do not wish to be understood as regarding infection of the raw ends of a broken bone to be harmless—by no means. I know that only too often it is the chief cause of non-osseous union; but I do insist that it shall be properly regarded as but a temporary influence inimical, for the time to bone repair, and changing the treatment of the fracture only by reason of its preventing the application of the most useful dressings and appliances. The end object of our manipulations remains the same.

I protest also against the defining terms ununited and spontaneous, excepting for the few occasions on which these conditions do exist. The so-called ununited fractures are almost never such: bony union may be wanting, but it is comparatively seldom that fibrous tissue, or in young children, more rarely cartilage, does not hold the fragments together. Spontaneous, it seems, to me, is used in much the same sense as we use idiopathic, as a shield for our ignorance. We call a case one of idiopathic tetanus; not because we believe it has originated without a definite point of infection, but simply because we do not know where that point has been, nor the predisposing causes which favored it. So we speak of a fracture of the neck of the femur, for instance, as spontaneous when we are unable to determine the offending force which caused it. Fractures not due to violence either external or internal, certainly do exist: I have seen complete solution of continuity of a clavicle as the result of an infiltrating tubercular process, extending from the supra- and intraclavicular lymph nodes. But I question whether even such a fracture ought to be called spontaneous. I think it is more properly classed as a pathological one, though this name is commonly applied when a bone is predisposed to breaking by disease, and the fracture is really the result of a traumatism.

Multiple fracture, as used by most authors, leads students to confusion. For some it means two separate fractures in a single bone; for others, one or more fractures in two separate bones, these being other than those of the forearm or leg. It is more logical and rational, in my opinion, to call two distinct fractures—that is in which the lines of separation of the fragments have no connection with each other—in one bone a multiple fracture: should, however, two bones other than those of the forearm or leg be involved, then let the condition be called multiple fractures of the bones in question.

All these inconsistencies are trivial enough matters in themselves, but I find that they wrongfully leave the student without a definite map, so to speak, of the lay of the land.

Of far greater importance are the questions which come up in diagnosis, not the diagnosis of the existence of fracture so much as of the exact disposition of the fragments. If I should speak too dogmatically upon certain points for your approval, and insist too strongly at times upon the logical exactness of cause and effect, kindly remember that I am viewing the situation in the light of the relationship of teacher and student, for I have always believed, and do believe, that dogmatic teaching accomplishes the greatest good. I am not unaware how frequently theory and practice clash. Nevertheless, better give the student something definite to stand upon—he cannot jump from thin air—than throw him into the confusion of "may be" and "might be."

By means of the classical signs and symptoms of deformity, crepitus, abnormal mobility, pain, disturbance or loss of function, et cetera, we can determine the presence of a break in a bone; but what positions do the fragments occupy and why do they assume these positions? How can we correct the deformity and bring about a restoration to normal if we do not recognize the forces which cause it and counteract them? Of what does treatment consist other than an intelligent application of apparatus designed to antagonize one or more of the forces which are responsible for displacements? If a dressing does that and at the same time keeps a part at rest it is all that is desirable and necessary. What are these forces responsible for temporary or permanent displacements? There are three: the traumatic agent, gravity and especially muscular action. The first—the traumatic agent—becomes inoperative as soon as the traumatism has been inflicted; it is the least potent in causing permanent results and is most easily overcome. A part of the bone is driven out of place; if neither gravity nor muscles act upon the fragments, by means of pressure or traction or both, we replace them; there is no tendency to redisplacement—why should there be? No active force is controlling them. Theoretically, then, when replaced they should remain in position, and so they do. The simplest sort of retentive dressing is employed and proves sufficient. Take a specific example, fracture of the nasal bones, resulting invariably from direct violence. We raise the depressed fragments and return those driven to one or the other side to their proper positions: now having fulfilled the one indication of treatment, that of reduction, if we keep the parts in place the second indication is also fulfilled. But is it necessary actively to do this? What force other than a new traumatism will displace the fragments? Not gravity, because this is counteracted by the opposition of the nasal processes of the superior maxillary bones with which the nasal bones articulate; not muscular action, because only seldom are there muscular attachments to these bones and then it is only the attachment of a few fibres of the occipito frontalis. Theoretically, then, they should remain properly placed, and they do, and they almost never require a retentive dressing. Of fourteen cases of such fracture which I have seen during the past three years, in only one was I compelled to use apparatus (other than gauze packing to stop bleeding) of any kind and in that case the crushing was very great with marked lateral displacement of the fragments.

Gravity, on the other hand, never ceases to act and we must constantly oppose it when bony support is lost, unless again muscular action counteracts it. But after all, it is easily overcome by supporting dressings, having fixed points located above the fracture. For example, in fractures of the middle third of the clavicle, bony support being lost to the upper extremity, the extremity drops because the muscles (the deltoid, biceps and coraco-brachialis) which might and do act as tractors upon the arm have lost their fixed points: and it is one of the cardinal principles of treatment in such cases to give proper support to the extremity. On the other hand, in fracture of the surgical neck of the humerus, that part of the extremity below the line of fracture is almost invariably drawn upward (unless, of course, the fracture be such that there is no lateral displacement) by these same muscles, the deltoid being particularly active: and instead of having to support the arm from below, we usually have to employ some sort of apparatus to provide continuous traction upon the extremity to prevent the almost inevitable shortening.

Most important of all, however, to me is the necessity of appreciating the power of muscular force: it is a vital force, always active, hard to overcome by mechanical appliances, constantly frustrating not only our efforts at reduction—especially when at its maximum as the result of mechanical irritation by the sharp ends of fragments—but also undoing our work when reduction has once been accomplished. And I believe that failure on the part of the medical attendant to lay proper stress upon the part which the muscles play is accountable for more poor results in bone injuries causing fracture than all other things combined. I think it was my friend, DOCTOR VAUGHAN, I once heard say, in speaking of the mental development of children, that the education of a child ought to begin with its grandparents: so I believe that the student's study of fractures ought to begin not late when he has perhaps forgotten a considerable portion of his anatomy and osteology but early, early in his career in the dissecting room. He should be taught that the value of knowing the origin and insertion of a muscle lies not in the absolute knowledge of those facts but in the knowledge that with two such fixed points, that muscle is capable of a certain action, which action, unless the muscle be injured or diseased, is fixed and unaltered under all conditions; that the direction in which muscular force acts is not always that which it seems to be and that the physical evidence which we have of that force is usually the resultant of two forces, namely, the muscular force itself and the force of opposition of the bone or bones with which the movable bone articulates. Witness, for example, a fracture of the surgical neck of humerus: the real action of the deltoid is readily seen; it is really a tractor upon the humerus—an abductor of the arm only by reason of the articulation of the humerus with the scapula.

And so with the bones; the student should know the depressions and tubercles and apophyses not for the purpose of recognizing a particular bone as it lies in a tray or on a table in the osteology room, but he should know them in their relationship with other bony prominences of the skeleton so that they may serve as definite landmarks for him and help him recognize deviations from the normal. Think of the great diagnostic aid of Nelaton's line; also of the relative positions of the olecranon process and the two epicondyles of the humerus; of the styloid processes of the radius and ulna; of the two malleoli and of a number of other prominences. These bony prominences are frequently the only things by which we determine deformities because they are palpable to our touch and from them we make our measurements. And it seems to me that too much importance cannot be attached to familiarity with the places of insertion of muscles, again, I urge, not in the abstract, that usually fails to give the student working knowledge, but with special reference to the displacement of fragments which must and does logically occur, unless interfered with, in case of fracture above or below such muscular attachments.

In short, there could with profit, I think be taught the surgical anatomy of fractures, disregarding the specific consideration of diagnosis and treatment, since these must of necessity follow easily and logically when once the requisite anatomical knowledge is gained. Do not let me be misunderstood. I do not mean to say that it is always easy to accomplish what it is desirable to accomplish. I mean that the indications for treatment follow easily and logically. Of the usefulness of such instruction, little need be said: from the standpoint of the practitioner it is patent, since he is called upon to attend cases of fracture far more commonly than he is to tie carotid arteries or perform operations for the radical cure of hernia or others in which the surgical anatomy of muscles and fasciæ and vessels and nerves plays an essential part. Let the student know the muscular attachments of bones so well that, given a certain fracture and knowledge of the nature of the force causing it, he can plan the relative positions which the fragments must and, unless interfered with, usually do assume, without ever having consulted a text-book on fractures: and let him remember, in fracture of the femur, for instance, that the flexors and extensors attached to the distal fragment lose for the time their identity as flexors and extensors and act solely as tractors upon it and produce the pernicious overriding and shortening which is at times so hard to overcome. Give this muscular action the important position it deserves, even overestimate its importance, and the results of treatment will grow correspondingly more satisfactory. And I fear that we too often forget that the muscles are active not alone at the time at which we reduce the initial displacement but that they continue active, becoming more and more so synchronously with the hyperemia that makes the reparative processes possible; and so, retentive dressings which served their purpose at first, later become inefficient and do not retain the fragments in proper position. In other words, I think the instructor should emphasize the benefits of continuous traction, extension, in all cases in which powerful muscles are attached to the broken bone, especially when the line of fracture is such in direction that overriding is possible and probable. We should not place too much reliance upon the mechanical contrivances called splints which, no matter how one views it, act almost entirely by reason of the pressure which they exert and therefore do not directly counteract the muscles responsible for the displacement. We are too much inclined to associate extension with fractures of the femur and leg bones, and properly so, but I think we too charily employ extension on the upper extremity.

There is just one more of the thousand and one topics of importance which come up in the consideration of fractures that I wish to speak about, and that is the subject of fixed dressings, which necessarily involves the question of rest. Fixed dressings, and for us that usually means plaster-of-Paris or sodium silicate, when intelligently used are productive of great good; but when ill-advisedly used may work corresponding evil. I find students constantly suggesting the employment of "plaster casts," they call them, an absolutely incorrect term, in all kinds of fractures and at all times during treatment, usually at the beginning. Now, with one or two exceptions fixed dressings should be employed only when all probability of displacement is past because almost necessarily our daily or tri- or biweekly observation of a case ceases with the application of such a dressing—certainly examination is more troublesome and disturbing to the parts even if the splint is removed. Early in the treatment it is our duty to examine a fracture frequently since, as I have said before, muscular irritability increases with the hyperemia of repair and readjustment of fragments is often demanded.

Fixed dressings, while they do not absolutely prevent the employment of extension apparatus, render it less efficient and interfere with its use. Besides, if this sort of dressing is applied before swelling has occurred—and in fractures due to direct violence swelling is considerable and persistent—it becomes a menace to the life of the tissues by reason of the relatively increased pressure as a result of the swelling; certainly pressure paralyses have developed, paralyses fortunately in most cases temporary but at times lasting to ultimate loss of muscular power. If applied during swelling, the fixed dressing fails of the very purpose for which it is used, that is, for the purpose of giving rest, because when the swelling has subsided the splint is loose and allows more or less free movement of the fragments within it. In open fractures, unless the wound is unquestionably uninfected, fixed dressings are unsatisfactory: it is difficult to properly treat an infected wound through a fenestrum; the parts cannot be efficiently cleaned and the splint soon becomes soaked with discharges and is foul. The two circumstances in which a fixed dressing can with profit be applied early are, first, when we have a single transverse line of fracture as the result of indirect violence, where there is the minimum amount of swelling and the least possible tendency to displacement when once the fragments are adjusted; and second, when the patient is about to subject himself to the risk of further violence, traveling, et cetera, and it is desirable to give to the part greater protection than is found in less dense dressings.

But to come to the real value of the fixed dressing: I think it lies entirely in the absolute quiet which it secures for the parts about which it is placed and it seems to me that we do not place enough faith in the prominent position which this same rest occupies in healing processes. We should not expect a clean, incised wound to heal if we kept constantly shaking and breaking down the delicate scaffolding of fibrin upon which the formative cells, the tissue builders, do their work; no more should we expect bones to unite if we treat them in the same way, especially since, for physical reasons, the production of osseous tissue is a less easy process. We would not go very far wrong if we occasionly adopted some of the methods of the despised old-time practitioners and put a few more of our fracture cases in bed. Why, only recently in a prominent clinic of one of our large cities, I saw a fractured clavicle treated with nothing more than a sling to support the forearm and a Colle's fracture with a strip of adhesive plaster passed circularly about the wrist. Now, these methods may be all right—and I grant you in some cases may be all that is necessary—but I consider it dangerous and careless practice. The sling may keep the fragments of the clavicle fairly well approximated and the adhesive plaster the lower end of the radius in place

—in fact, there is nothing to pull it out; only the pronator quadratus is attached to it and that pulls forward and not backward—but with free arm movement and free wrist and hand movement, how much rest will the parts get? The maximum and not the minimum of reparative material will be required and those patients are not unlikely to have persistent deformities because of the increased amount of callus formed. The most conservative healing, conservative as to time required and as to formative material needed, takes place when the adjustment of fragments is most perfect and when that adjustment is most carefully maintained. Not only that, but in the absence of proper immobility at the seat of fracture, we have a condition very likely to result in non-osseous union. This follows logically and rationally for two reasons: The parts are kept from uniting because of the physical disturbance, and the hyperemia, which must persist from the continued irritation, keeps the newly forming tissue so soaked with fluid that the inorganic materials are dissolved and not deposited. Witness the frequency of fibrous union in intracapsular fractures of the neck of the femur and in fractures of the patella, though in the latter case, one must also consider the question of the interposition of the fascia anterior to the patella, which is often accountable for the non-osseous union.

To realize that nature has directed the organism to seek for rest for any of its tissues which may be diseased or injured, we have only to note the fixation of a joint—the hip, for instance—in tubercular disease, coagulable and organizable lymph in serous cavities, and the provisional callus in fractures which Dupuytren goes so far as to say is *never* concerned in the true healing process but is merely a splint of nature formed to keep the bones quiet while repair is taking place.

In conclusion, I wish only to call attention again to the muscular attachments of bones, hoping that I have emphasized sufficiently the intimate relations existing between muscular action and displacements and demonstrated the rationality of holding this action responsible for most of the troublesome deformities in these cases.

SOME GENERAL THOUGHTS BASED UPON THE TERM "PARALYSIS" IN PARTICULAR.*

By HIRAM A. WRIGHT, M. D., L. R. C. P. (London), Detroit, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Having entertained views for some time which might be considered somewhat unorthodox, I have thought them of sufficient interest to warrant me in the preparation of a paper for your consideration. It is not my intention, however, to advocate any new

*Read before the Wayne County (Detroit) Medical Society.

method of treatment, nor to endorse the efficacy of some new or old pharmaceutical preparation as a *sine qua non* in the successful treatment of patients affected with paralysis. Rather do I hope to direct your attention to some phases of the subject, perhaps hitherto not brought out for discussion, yet pertaining to the frequently met with departure from a normal or healthy state of the physical organism of man. I have thought this subject peculiarly appropriate to study and discuss in this society, composed as it is largely of general practitioners who, in the course of their professional career, are often called upon to treat cases of the kind without the consulting aid of the specialist.

There are but few other manifestations of disease in the physical body over which we, as members of the medical profession, have so little control as we have over nervous diseases, nor which are more disappointing to us, so far as being able to effect a cure by the various methods of treatment we adopt. The *palsied* have from time immemorial been the bugbear of the so-called regular physician, and after his failure to secure the hoped for recovery, they too often become the prey of the ignorant unscientific charlatans and quacks who infest society, as equal claimants of the respect and confidence of the laity, with the ought-to-be skillful and reputable regular practitioners of the healing art.

I doubt not that many of us can recall instances of having been consulted by patients suffering from some disease of the nervous system, in which we have been utterly unable to improve their condition by whatever treatment we might adopt or have at our command. These failures should not be lightly passed over by us. They should be made subjects of study and investigation, for they clearly show the fact that we are not yet in possession of all knowledge concerning the body and its various diseased conditions. Three centuries ago the renowned AMBROSE PARÈ believed little would be added in the future to what he then knew concerning medicine and surgery in their different branches of study. No doubt he knew much, but *time* has shown that, unfortunately for many of the things he knew, they were not true. No doubt we now entertain many views which *study* and *time* will cause us to very materially modify. Methods of treatment for many diseases, adopted and practiced a few years ago, have now become obsolete. We patiently wait for the passing of many of our present methods, which we now deem essential to the successful treatment of disease.

> "So fleet the works of men, back to the earth again
> Ancient and holy things, fade like a dream."—KINGSLEY.

And are we not inclined to forget our failures and somewhat boastfully refer to our successes, in relating our professional experiences one to another? Our failures should be made more profitable to ourselves, even as our successes are profitable to our patients. We sometimes hear of a physician who claims to conduct all cases he treats to a successful issue. Sometimes *success* means having collected a good large fee in advance only! May we hope the membership roll of this society is not burdened with the name of such, of whom it may be said their ethical standards and intellectual attainments are both of a low order.

Not to digress too widely, however, let us now be more specific, and endeavor to agree upon a definition of the term *paralysis*. It is derived from the Greek *para* and *luo*, I loosen, and thus literally signifies a *loosened* or *atonic* state of a part or parts of the body. DOCTOR DANA says paralysis is a loss of motor power. DOCTOR GOULD defines it as a complete loss or great diminution of the power of motion in one or a number of the voluntary muscles. This definition is open to criticism, since involuntary as well as voluntary muscles may be paralyzed; for instance, the *iris*, *heart*, or *bladder*. DOCTOR DANA's brief definition is therefore preferable, and even this might be improved upon, perhaps, after careful study and effort.

A close scrutiny or comparative reading of the literature relating to this subject, shows it to be in an almost chaotic state, due, I think, to a careless use or misuse of the word *paralysis*, or by attaching to it a meaning which scientific usage would not warrant. We all know how difficult it is to rid ourselves of our first impressions concerning any subject, be that impression either right or wrong. This thought is applicable to the subject matter of this paper, since all students acquire their first acquaintance with scientific knowledge either from text-books or lectures. Years ago the careful clinician eliminated from his nomenclature of diseases such terms as *cough*, *jaundice*, *headache*, *hemorrhage*, *vomiting*, *dropsy* and *convulsions*. This for the reason that these are not, and should not be, classified as diseases. They are but symptoms which point to the presence of some diseased state in either the respiratory, digestive, nervous, or circulatory systems within the body. Paralysis is nothing but a symptom, and it, as a symptom, bears the same relationship to the actual disease or lesion in the nervous system which induces it, as does cough, as a symptom, bear to the actual lesion in the respiratory tract which is responsible for its development. But the term *paralysis* is still retained and spoken of as a disease by practically all teachers and writers in medicine. One or two of them describe certain diseases—for instance, acute ascending paralysis or paralysis agitans—as a symptom-complex, and after so designating it, describe it under the headings of etiology, *symptoms*, pathology and treatment, precisely as is done in dealing with the description of *gastritis*, *nephritis*, or *sclerosis*. It may perhaps seem like hair-splitting to so criticise our literature, but when we come to consider the treatment spoken of by authors for this condition we may then readily appreciate the importance of this closer study. I do not for one moment wish to convey the impression that such eminent physicians and teachers as GOWERS, DANA, OSLER, WILSON, SPITZKA, or CHURCH do not know what is the true relationship existing between paralysis as a symptom and the actual disease which induces it. But I do say they have been very careless in their writings in the use of the term paralysis in an improper sense. And this carelessness on their part, and others who have preceded them, has been responsible for many a wrong impression entertained by students of medicine who do not so critically read as do we, who have had a more intimate acquaintance with such literature for a much longer time. This wrong impression must afterward be corrected if they, or we, may clearly comprehend the details of knowledge concerning this subject, and I now fearlessly assert that a very large proportion of the profession never correct those wrong first impressions during their whole professional career.

It has been my privilege recently to consult the writings of the above mentioned authors, and some others in addition, and find that without a single exception they repeatedly speak of paralysis of this or that *nerve!* If the definition given by DANA be accepted, how can we have paralysis of a *nerve?* A nerve has not motor power. How can it lose that which it never had? Or, if DOCTOR GOULD's definition be accepted, then it is clearly wrong to speak of paralysis of a *nerve*. Yet they all do it and tell of its etiology, symptoms and treatment.

Or again, if you will look on page 807 of OSLER's "Practice of Medicine" you will find a classified list of *symptoms*, *signs*, and *lesions*, relating to diseases of the laryngeal nerves, as quoted from GOWERS. From this we learn that when the *symptoms* are "no voice, no cough, stridor only on deep inspiration," the *signs* are "both cords moderately abducted and motionless" the *lesion!!* is "total bilateral palsy." This manifestly absurd statement would be excusable, but for the fact that the same terminology is repeated five times in the same classification on that one page.

I might refer you to almost innumerable instances of similar errors in other even more recent publications, but time and space forbid. You will find it profitable to criticise the literature for yourselves. It is sufficient to say in this connection, however, that *paralysis* has been assigned as the *disease* causing death in seventy cases in Detroit during the year from July, 1898, to June, 1899, according to the "Annual Report of the Board of Health" just issued. This is done, too, by physicians, not coroners. Nor are we in Detroit an exception in this respect. People die of *paralysis*, *convulsions*, and *dropsy*, in Philadelphia, and in New York, and in cultured Boston, according to the death records from these and other cities. I do not maintain that if the proper word—namely, the disease, not a symptom thereof—had been used in signing the certificate of death in these cases that the patient would not have died; or, that by the use of correct terminology—giving evidence of a correct diagnosis having been made—under such circumstances the grave would be forced to give up its occupant. But I do claim that if we would understand and teach medicine aright, we must have definite scientific terms, and these terms must be used habitually to mean one thing, and that one thing only. We must hew to the line and as nearly as possible, let *yea* mean *yea*, and *nay nay*.

Paralysis as a symptom is due to a destructive lesion in the motor nerve supplying a muscle or muscles, or in the motor tract of the cord or brain, or in the motor area of the cerebral cortex. The nature of the lesion determines the peculiar character of the resulting paralysis, as to whether it will be temporary or permanent. The lesion is necessarily destructive in character in order to induce a paralysis of muscles, since an irritative lesion in the motor *nerve*, *tract* or *centre*, will induce or be accompanied by convulsive movements—the antithesis of paralysis—in the muscles supplied thereby. The particular location of the lesion determines absolutely which muscle or muscles will be paralyzed. Hence a familiar acquaintance with the anatomy of the nervous system is essential, in order to definitely locate the lesion. We may never hope to restore the paralyzed muscles to usefulness except we first get rid of the actual disease or lesion in the nervous system, which induces the paralysis. Hence, a rational treatment for the patient would be, to treat the disease in the nervous system alone, and the muscles will responsively contract when the nerve transmits the motor impulse normally and not till then.

The neurologist's therapeutic armamentarium is nowadays largely composed of preparations of silver, mercury, gold, iron, potassium, arsenic, opium, cannabis Indica, conium, hyoscin, nux vomica, or galvanism, faradism and massage. I have not attempted to arrange these in the order of their merit, nor do I regard it as being complete. We differ, perhaps, considerably in our choice of remedies, according to individual experience: In so far as we direct our treatment to restore the diseased nerve or tract to its healthy or normal state, to my mind we are consistent. But to use strychnia, or galvanism, or faradism to induce contractions of the muscles independent of the *will*, as a therapeutic procedure, is to my mind the height of folly. Let us call to mind a patient having suffered recently from a rupture of an artery in the internal capsule in the cerebral hemisphere, producing a complete loss of control over the muscles of one side of the body. What benefit is it to such an one, should you secure countless contractions of the muscles in either the upper or lower extremity by electric stimulus, so long as the unabsorbed clot remains in the brain, as an obstruction to the transmission of the impulse along the motor tract from the cortical motor area to the muscles supplied therefrom? The same reasoning applies to a sclerosis in the motor tract of the cord. Of what therapeutic benefit can it be to the patient to induce contractions of the paralyzed muscles artificially, so long as the patient himself cannot contract them? I am firmly convinced that electricity is of no value from a therapeutic standpoint in paralytic states, and that its field of usefulness is only as a diagnostic aid. By it we may determine the degree of loss of power in muscles, but I am not convinced that it will aid us in restoring that which has been lost. It may be contended that by its use we prevent further atony and atrophy, but even this claim may reasonably be called in question. In my opinion electricity can be of no therapeutic benefit, so long as there remains a breach of continuity—caused by disease or trauma—in the conducting apparatus between the cortical motor cells and the muscles supplied thereby.

But, you answer, many cases of paralyzed muscles have been restored to usefulness when electricity has been used. True, but did they so recover *because* of the treatment, or *in spite* of the treatment? An almost equal number of cases of *failure* to restore paralyzed muscles to their healthy state, for which electricity was carefully and intelligently used for a long period of time, can be cited to counterbalance the other cases wherein recovery resulted. How account for these failures? Is it not due to the fact that the lesion in the nervous system, which is responsible for the paralysis, has not yet been repaired. Then if this repair of the lesion in the nervous system is so essential, why attempt to treat the muscles at all, in order to restore the patient's health? The whole argument is implied in the answers to the following queries: Will electricity itself develop muscular tonicity when voluntary control over the muscles has been lost by the patient? What developmental influence has electricity upon the muscles of the idiot—he who never has displayed volitional control over his muscular system. Does it follow that, having secured the phenomenon of muscular contraction by the use of electricity, the patient is in any way benefitted thereby? Should we succeed by treatment in restoring the diseased *neve*, *tract* or *centre* to its normal or healthy state, would not the paralyzed muscles recover their tonicity and usefulness as *well*, and as *soon* without the application of electricity, as with it? Is it of any value *in any case*, to treat effects, in addition to making an effort to remedy the real cause? Is not the whole doctrine of symptomatic treatment unscientific in the extreme? I leave these unanswered here, hoping that some of you will touch upon the ideas involved in the discussion.

I believe it is true that the advances which have been made in the art of surgery during the past few years, far and beyond what have been attained in physic, or the practice of medicine by other than surgical means, have been due to the fact, that in surgery, treatment has been directed against *causes*—not to palliate symptoms or effects. Having recognized that microorganisms of one form or another were responsible for the nonunion of wounds, and septic processes in general, surgeons directed their efforts to prevent the introduction of the pathogenic germ into the wound, or if it, unfortunately, gained an entrance, they endeavored to render it innocuous by rational means, with the result that surgery is today regarded as a *science*, while physic is yet far from the enjoyment of that enviable and respectable recognition.

The effort directed toward treating the muscles which are paralyzed as a result of pathologic changes in the motor nerve, or tract, reminds me very much of a man who has water in his cellar because of a leaking roof on his house, and who sweeps the water into the sewer, hoping thereby to remedy the difficulty, without in anyway trying to locate the leak or determine the nature of the defect. You may accuse me of having overdrawn the analogy; all the better if you do, yet I assure you it remains a true one in many instances of practice indulged in. Precisely the same idea is involved in the course too frequently pursued by some physicians, that of trying to cure a patient having a bronchitis, with cough as a prominent symptom, by giving a sedative for the cough alone, without having recognized the existing bronchitis, and then direct his treatment to combat the lesion—not to palliate the symptom (cough).

My plea is for a closer study of the pathology of diseased conditions, make an effort to determine the true etiology and diagnosis, and having satisfied ourselves in this direction, treat the causes or the lesion itself, not the symptoms which result from or accompany the lesion, as they become manifest. In no class of diseases does this thought apply with more force or greater significance than in the various diseases of the nervous system with their accompanying symptoms. Plain simple *justice* between physician and patient demands this on our part, if we would expect or demand pecuniary compensation for the services we render.

In connection with the study of diseases of the nervous system in a general sense, there is perhaps no more interesting thought to be considered than that of voluntary control over certain muscles. What do we mean by *will power*, *volition*, or *voluntary* control? This involves the study of the function of the cerebral cortex, and more particularly that portion known as the motor area of the cortex. Our physiologists teach us, and we are accustomed to think it is true, that these motor cortical cells are endowed with autogenetic power. By this we mean that the efferent impulse, which causes the muscle to contract, arises from, or is generated by, the cortical cell. This means that these cells are automatic, or are dependent for their stimulus upon sensory irritation, as in reflex action. One or the other assumption must be true, according to the teaching of our physiologists. The latter will not account for the various phenomena observed, and to accept the former leads us into further difficulty. For then, how may we distinguish between *volition* and *automatism;* or between those activities carried on within the body termed *voluntary*, and those termed *involuntary;* or between the cortical motor area, and the sympathetic nervous system; or between a convulsion involving the voluntary muscular system, and the coordinated voluntary muscular movements observed in walking, climbing, et cetetra; or between *doing* and *not doing* that which has been mentally conceived of or planned? Since a destructive lesion in the cortical center is as surely accompanied by paralysis as is a lesion in the motor tract or nerve lower down, it naturally suggests the thought, does the impulse arise autogenetically in the cell or cells of the cortical centre? If so, then what is volition, I ask again? I shall only take time here to *deny* the assumption or theory that motor impulses arise from or within the cells of the motor area of the cortex as our physiologists are teaching us today. To prove that assumption leads one into a fearful muddle in reasoning out, or attempting to account for, the various psychic phenomena, which it is possible for every rational being to display. To support my denial thereof, would call forth an argument which would consume too much time to warrant me in engaging upon it in this essay, since it involves the elucidation of a theory or hypothesis which explains or accounts for the basis of all mental or intellectual activities, in both the sane and the insane.

In conclusion, it may be urged that I have not made my paper sufficiently practical, inasmuch as I have not shown how we may the better treat these difficult cases, than has been our custom heretofore. Let me repeat what I hinted at in the beginning, that this was not my purpose when I decided to prepare the paper. I merely desired to stimulate thought, and to awaken discussion, for thereby we secure the real profit to be derived from our society's meetings. For, did we but think more for ourselves, and not be so inclined to blindly follow authorities, we would both *do* and *be* better as physicians.

> "How many there are of the thinking few,
> Who think they think, yet never do."

Did we put forth, as a profession, a really sincere effort to both secure and retain the confidence and respect of the public, both *sick* and *well*, we would not require the aid of the state legislature to prevent such bugaboos as Christian scientists from flourishing in our midst. It is because we, in many instances, fail to accomplish the ends we profess to be able to, that they claim recognition in the field of medicine. To say that they deserve recognition is quite another question. When we do our full duty, as physicians, toward suffering humanity, there will be no field for them. This means that we ought to equip ourselves as well as opportunity will possibly permit, in order to skillfully perform all the duties which devolve upon us as physicians In this equipment or preparation nothing can be of so much assistance to us as are the recorded experiences of those who, because of their scholarly attainments and wide fields of observation, have become to be regarded as authorities and leaders of thought in our profession. These experiences we should become acquainted with, yet at the same time we must remember that no *error* was ever yet accepted and entertained as *truth* by men, but that it was supported by authority. For instance, authority, as proved by our most recent publications, would lead us into confusion concerning the term *paralysis*, did we not individually criticise, or call in question many of the things which have been written concerning it.

192 HENRY STREET.

THE RELATION OF MENINGEAL TRAUMAS TO MENTAL DISTURBANCES.

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THE dura mater, histologically speaking, is composed of two distinct membranes. The external is a dense fibrous membrane, lining closely the interior of the calvarium; the inner surface is smooth, lined with endothelium and is a serous membrane. The dura mater is therefore a fibro-serous membrane, external fibrous, internal serous. In keeping with these histological facts each layer is subject to somewhat different pathological conditions. The inner layer of the dura is far less frequently diseased than the outer. A chronic simple inflammation of the latter may exist for an indefinite period prior to death.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

It is frequently observed, as in case number one, in making autopsies that it is difficult or impossible to remove the calvarium without considerable force, and often laceration of the dura is the result. In these cases the dura is firmly adhered to the calvarium, and if we are careful to examine the latter we will find that it is thick and often heavier than normal, indicating an increase in the osseous structure and a decrease in the spongy structure, or diploe. DOCTOR WEIR MITCHELL attributes to this condition many permanent and obstinate headaches, a cause which is often overlooked during life.

The following cases are in point:

Case I.—E. W. E., aged fifty-six years, and a widower over thirty years. Occupation, agent for land company at Sault Sainte Marie, in which he held some interest, the duties connected therewith occupying very little of his time. He was refined, and an exceptionally well-educated and well-read man, and had formerly been a prominent society man, but during the past ten years, although having the entree into the best society, he refused all invitations and, from choice, lived in comparative retirement. He had only two or three intimate friends, and was considered a "crank" or eccentric by those persons who met him often but did not know him intimately. He lived a solitary, lonely life in his office, to which his bedroom was attached. In business he was considered a man of exceptionally good judgment and acumen. He had always been extremely careful of his health, and was fond of talking about his ailments; was constantly taking medicine for catarrh (nasal), biliousness and nervousness, and was of an extremely morose temperament.

About the 16th of January last he complained of some pain and slight swelling of left side of face, which he thought due to defective teeth. On the 18th he had a dentist extract the second and third molars of the left upper jaw. The pain and swelling continuing, he consulted a physician two days later, who found some slight swelling in the muscles of the inferior and temporo-maxillary region, hyperesthesia of the skin and sensitiveness of the mucous membrane. Pressure was painful at the points of emergence of the nerve trunk, especially so where the nerve enters the muscles. The ophthalmic division was not affected, but in the upper maxillary division the pain was marked along the upper teeth and there were painful spots along the auriculo-temporal nerve, the pain radiating in the region of the ear, along the lower jaw and teeth. He complained of intense pain directly over the temporal bone; mastication and talking were painful.

Examination of the mouth and teeth showed nothing abnormal. Temperature normal, also pulse. Bowels constipated. The case was diagnosed as facial neuralgia. Some of the nerve analgesics were prescribed with codeine to relieve the pain, aconite ointment for external application, and a saline for the bowels. This treatment not relieving the pain, which continued in the same locality, nitroglycerine and gelsemium were tried with little effect; also hot water bottle and other hot and soothing applications. The patient at this time, a week after calling in professional aid, remained during the day in his office, but did not venture out of the house. He took very little nourishment, had very little sleep at night, and was extremely nervous and forgetful. He refused to stay in bed during the day, and after going to bed at 9 o'clock at night, would get up in two or three hours and dress himself, sitting up the remainder of the night.

Patient began at this stage to develop symptoms of mental unsoundness. He had illusions of hearing and sight, and was unable to remember the combination of his safe, which he was anxious to open. He could not remember directions for taking medicine, et cetera. Swelling of the face increased and the intense pain changed from center of temporal to coronoid process. On examination of the ear the anterior wall of the external auditory meatus was found slightly swollen. The handle of the malleus was retracted; the short process very prominent; the membrana tympana externa in consequence was drawn in, and the two folds extending from the short process, as are ordinarily seen in chronic middle ear catarrh, were very prominent. The membrana tympani had lost its lustre and presented considerable opacity. On the 30th, or about twelve days after being under medical care, he remained in bed for the reason that he was unable, through weakness, to dress himself and unfit, mentally, to be trusted without a nurse. At this time his pulse and temperature were normal and continued so throughout the course of the disease. Bowels and skin normal. Urine normal. He took very little nourishment—milk and egg, beef peptonoids and whiskey.

Mental disturbances gradually became more pronounced. He had illusions and became at times violent. It required two male nurses to attend him. He kept constantly trying to put his bedclothes on for socks and trousers, and endeavored to get out of doors. One of his illusions was to pick the paper off the wall of the bedroom in order to enlarge the room. He fancied chairs were men and women and refused food and drink. Swelling of face increased, with local heat and redness. Pain dimished. Submaxillary gland became involved. Center of pain over coronoid process. No fluctuations.

Attempts were made to locate abscess with aspirating needle, but without success. Application of cold to swelling caused pain. It was found necessary to give morphia hypodermically to quiet patient, one-half grain at most during twenty-four hours. Strychnia was given for the heart. Examination of ear on third or fourth day after his taking to bed revealed the anterior wall more swollen, the view of the auricula membrana tympani leaving only the posterior inferior quadrant to be seen. This, however, did not show that the middle ear was actually involved, nor did sharp percussion on the mastoid process at any time cause pain. Mouth, throat and teeth were examined and found normal.

Doctor Conway, the dentist who extracted the teeth, states that patient had been complaining of pain in the lower jaw for about four years, but that from several examinations he could not discover the cause.

I was called to see patient, in consultation with Doctor B. D. Harison, on Februaiy 5, about three weeks after patient first had a physician. Upon arrival, patient was being held in bed by two powerful men, after having what were termed "attacks," in which his strength was very great and required two attendants to control him. His pulse was 84. The first and second sounds of the heart could be heard; volume very much decreased, and quite rapid in rhythm. Temperature normal. Pupils were equal and responded to light. Patient was asked to protrude tongue, which he did; no paralysis of organ was found. A swelling was noticed on the left side of face, which extended down over the superior and inferior maxillaries, and below and including the submaxillary gland; the latter was swollen and enlarged but quite firm, and gave considerable pain on pressure. No fluctuations could be found. Sensation in both upper and lower extremities was impaired. Locomotion was very much impaired. The swelling on side of face extended to and narrowed the external auditory canal. Patient's tongue was coated with a yellowish brown fur; odor from breath very offensive. His talk was disconnected and he could not converse, but would answer questions after being aroused, though intellect was very dull. Labored from delusions of going to fall or be injured. Would not recognize friends or acquaintances unless his attention was particularly called to them. When asked if he knew such a person, who was his friend, he would answer in the affirmative when his attention was called to the friend. He died ten hours afterward, the immediate cause being cardiac failure.

POSTMORTEM, EIGHTEEN HOURS AFTER DEATH.

Skull-cap removed with great difficulty. Dura mater firmly adhered to inner table; dura was also thickened somewhat. Sinuses were distended with venous blood. Pacchionian depressions well marked on inner table with corresponding bodies on membrane. Dura mater firmly adhered to pia along longitudinal fissure. An excessive amount of subarachnoid fluid. Some venous congestion over whole surface. Slight adhesions noticed between pia and brain substance, more pronounced over base. Sections of cerebral tissue presented nothing abnormal macroscopically, in fact there was no tissue, with the exception of the dura mater, which presented anything strikingly pathological to the naked eye. On the left side of face and neck there was quite a large swelling. An incision into the substance disclosed quite a large abscess cavity behind the inner angle and ramus of the inferior maxillary, filled with about four ounces of very fetid pus. The cavity extended up to the external surface and base of skull inside of styloid process of temporal. The inner surface of inferior maxillary was denuded at angle, and extended up ramus about an inch.

This case is of interest from a surgical as well as a pathological point of view. Pus was suspected but was not located before death. The mastoid cells were not involved, neither did the pus cavity extend into the antrum of Highmore, as is frequently the case. The roughened condition found along the inner angle of the ramus of the lower jaw, extending upward toward the upper jaw, and involving the canals which lead into and are in close proximity to the posterior cerebral lobe, would indicate the serious nature and location of the pus. However, the alveolar abscess was suspected and an examination made per orem, but it was not detected. As is well known to surgeons, an alveolar abcess may perforate the antrum when attached to an incisor tooth, or may open into the nares, or when connected with lateral incisors the abscess may perforate backward between the layer of the palatine process and superior maxilla, or between the periosteum and hard palate, or may also form fistulous openings on the face near the inner canthus or the under jaw of the malar bone. When connected with a lower incisor they open sometimes in front of the chin, under the margin of the lower jaw. It is also known that pus from an alveolar abscess may pass down the neck, and one case is reported wherein it found exit below the clavicle, and in another fatal case it reached the armpit. When the alveolar abscess distends, the mucous membrane of the gum or cheek, the diagnosis is easily made, and of course incision and evacuation are the remedies. In this case these conditions were not found, there being no fluctuations, either external or internal. The mental symptoms manifested by patient, even before going to bed, indicated meningeal complications. The adhesion to the inner layer of the calvarium of the dura mater would indicate that they had been of long standing.

There was a history of cephalalgia in his case which might be accounted for by the pathological condition of the dura. The involvement of the brain and meninges might be attributed to two principal causes: (1) The mechanical obstruction caused by the situation of the pent-up pus. (2) The meningeal complications caused by sepsis or streptococcus meningitis. Such extensive adhesions as were found in his case indicated a chronic inflammation of long standing. While the cause of death was, no doubt, due to heart failure, the location of the abscess, involving the external carotid and other vessels which supply the brain, no doubt was responsible for the mental symptoms which developed in this case.

Case II.—During the month of November, one year ago, two men started from the town of Newberry with a load of provisions for a lumbering camp, ten miles distant. They drove over a rough and tortuous road. One man was partially intoxicated before starting, and having a supply of liquor with him soon became unmanageable and persisted in standing upon the load. At last he fell, face forward, upon the frozen ground. It is not known whether he struck a stone or not. He was picked up unconscious, his companion put him into the wagon and went on to the camp, a distance of four miles. He received no medical aid there but was brought back to Newberry, where I saw him in consultation with DOCTOR NEAL at 9 o'clock the same evening. He was still unconscious and rapidly passing into a state of profound coma. There were few conveniences where the patient was taken. The only light available was what we obtained from a small dingy kerosene lamp and a lantern. The wound had not been dressed nor anything done to it except that a filthy cloth, covering part of the injury, had been placed over it. After washing away the clots of blood which were mixed with earth, the internal angular process of the supraorbital arch of the frontal bone, up as far as the superciliary ridge, was found fractured, together with the fracture and flattening and displacement of nasal bones. The fractured supraorbital arch compressed the cerebral substance and left eye, causing the latter to bulge from its socket and destroying sight. As the artery, vein and nerve pass into the brain at this point, we were unable to determine the extent of injury. The opening at the union of frontal and nasal bones was large enough to admit a finger. The operation consisted in elevating the bone over cerebrum and replacing the meninges, which were protruding, and providing for free drainage, together with adjustment of nasal bones as far as was possible under the circumstances. The patient rallied and recovered but with mind impaired, and remained so for some months after physical recovery. Then the case was taken to another part of the state and lost sight of. The mental aberration was no doubt due to trauma or shock.

Case III.—During the last ten weeks I have had under my care, at the Lakeland Hospital, a lady whose husband was the leading merchant in a southern city, and the wife, naturally ambitious, held a leading position in society. About one year ago the husband suffered reverses in business, and for a time great mental strain followed. Servants were discharged, carriages dispensed with, and social obligations could not be met. The mental disturbance or shock was so great, on account of the changed financial standing of her husband, and her own social surroundings, that her mind and nervous system became affected, necessitating her removal from her home surroundings. When first seen by me, in consultation with DOCTOR HAL C. WYMAN, she was very reticent, and did not think she was suffering from any condition requiring special treatment except, possibly, slight nervousness at times. Her chief delusion was in relation to her neighbors who were formerly her warmest friends, but after financial loss became her enemies; some, she thought, wished to do her bodily harm. These conditions existed largely, if not wholly, in her own imagination, as testified by her friends, and also by letters of warmest friendship received from neighbors while she was under my care. This case is interesting on account of the nature and persistence of delusions. In ordinary conversation nothing abnormal could be detected, and she was very reticent about imparting to others any knowledge relative to her troubles. At present she has periods of nervous depression, during which times she is very apprehensive as to the condition of her surroundings (when she returns to her southern home, which she anticipates doing in the near future), but they are fewer and not nearly so severe as formerly.

This case illustrates a type which might properly be termed psycho-traumatic insanity, as the mental aberration followed immediately after the mental shock. Violent mental emotions expend their deleterious force on nutritive and vital processes. This patient was bordering upon acute mania, and in a condition which would not respond to therapeutic agents alone, hence removal from home anxieties and the quietude and regularity of institutional life formed very important factors in reaching satisfactory results.

NEURASTHENIC INSANITY.

Case IV.—MRS. W., aged twenty-eight years, referred to me by DOCTOR E. B. SMITH, lost her husband in the Wonderland disaster. Until then she had enjoyed good health. When examined by me the reflexes were found exaggerated, and she had an anxious countenance, localized pain around base of brain, and a feeling of pressure over crown. Mental condition: constant fear of impending danger, suffering at times from hallucinations of hearing and loss of sleep, pain and a feeling of depression over cardiac region. These conditions were the result of the intense emotional shock caused by the sudden death of her husband. The physical conditions present were exhaustion of nerve centers accompanied by general weakness of the functions of body, together with disturbance in the functions of the vasomotor system, which were the cause of the physical manifestations. Neurasthenics do not, as is generally supposed, become insane, neither do they enjoy immunity from mental alienation, as the history of many cases in our asylums will show that some forms of neuroses antedated the psychoses.

These two cases are briefly referred to as illustrating a form of mental trauma, in contradistinction to that form known as traumatic insanity due to definite lesions of cerebral tissue frequently following the receipt of injury to the head. It is quite frequently the case that the extent of injury to the brain does not bear a constant relation to the severity of the mental disease, which may pass into a state of hopeless dementia after a trivial injury.

I do not think that sufficient importance is attached, generally, to what may seem slight mental disturbance. Most persons are vulnerable in some direction, men, perhaps, in the financial, as loss of property is a great blow. In youth a reprimand and disappointment in love has caused suicidal mania. But it is the opinion of some that in a normally constituted person no amount of mental shock is sufficient to produce mental disorder.

Insanity as a sequel of surgical operation on different organs of the body has long been known. The variety known as transitory mania, or delirium, is recognized by all surgeons, although occurring less frequently since the adoption of aseptic methods. The intense anxiety and worry preceding a serious operation is a factor in the production of transitory mania. Another class is due to poisonous agents used before, during or after the operation. In operations upon the eye hallucination sometimes follows, and is thought to be due to the use of atropine and similar drugs. In another class postoperative psychoses are due to the absorption of septic material from wounds or exposed surfaces during operations.

EDITORIAL ARTICLES.

A DANGEROUS DOCTRINE.

Justice Simeon E. Baldwin, of the Supreme Court of Connecticut, is credited, by the *New England Medical Monthly*, with the following sentiments, publicly expressed before the American Association of Social Science, at Saratoga, on "The Natural Right of Man to Death:"

"There are certain maladies that attack the human frame which naturally end in a speedy death, but may be so treated as to lead to a protracted state of weakness and suffering incompatible with any enjoyment of life or useful activity, and from which there can be no reasonable hope of ultimate recovery. * * * Nature has kindly smoothed the sufferer's pillow by leading the way to that gradual exhaustion of the vital powers which follows the refusal of the stomach to receive or digest food. To force nutrition into the system in such a case through other channels is simply to prolong a useless struggle at the cost of misery to the patient and to the profit of no one but the doctor and the nurse. * * * A natural death, coming in ordinary course, may be the divine way of calling one up from a condition of existence to which he is unfitted, or in which he is not needed, to one in which he is needed and needed at once. To postpone it, to protract a life by medical skill beyond its seemingly appointed bound, may, looked at in this light, risk the loss of a fitter place in a larger life—the loss of a God-given opportunity."

The substance of the Judge's contention was, according to the journal, that in mortal illness the prolonging of life is wrong and should be made illegal. This is by no means an unheard of doctrine, though it has rarely been given public utterance and never been supported by either logic or any considerable sentiment. However painful to the beholder the sight of a suffering patient may be, life is ever sweet, and the light of hope, though it sometimes flickers and grows dim, seldom goes out. In fable we read of a certain old man who had been cutting wood in the forest and, having raised the bundle to his shoulders, began to return home. When he had become fatigued, both by the load and the journey, he laid down the wood, and, reflecting upon the wretchedness of old age and want, in a loud voice invoked death to free him from all his ills. Presently death appears before him and inquires his wishes. Then the terror-stricken old man: "Oh! put this wood, I beg of you, upon my shoulders." Such are the varying moods that sickness also induces; and in the face of this and the sanctity of human life, granting that the struggle be sometimes apparently useless and death to be approaching, who shall constitute himself and whom shall society constitute the judge and executioner of our "*God-given opportunities?*"

Numerous as are physical ills in this day, how much more potent is medicine now than a century ago, and how much more there may be in life! To the physician society has entrusted the physical welfare of man. His province includes all bodily ailments and is bounded on all sides by physical health and enjoyment. His duties begin at the slightest deviation of natural function and end only by a return to perfect harmony within the human mechanism, or upon the irresistible supervention of death.

URINE AS A MEDIUM OF CONTAGION.

Pasteur is said to have demonstrated the sterility of fresh, healthy urine more than thirty years ago. That it is aseptic when first voided is generally believed to be a fact. That it receives germ life by exposure to the air is also well understood and indicated by the ammoniacal decomposition that inevitably ensues. But that pathologic urine may contain microorganisms to the extent that has been shown, and that it furnishes a dangerous medium of contagion are not as fully appreciated.

According to **Purdy**[1] nearly forty varieties of microorganisms have been discovered in abnormal urine and isolated. Some of these belong to the molds, yeasts, and other nonpathogenic fungi. Others are pathogenic, and for the greater part are micrococci and bacilli. In the former class have been found the staphylococcus pyogenes albus, aureus and citreus, the streptococcus pyogenes, and presumably the gonococcus of **Neisser**. Belonging to the latter class there have been found, among others not so well defined, the urobacillus liquefaciens septicus, the bacillus coli communis, the tubercle bacillus of **Koch**, and the typhoid bacillus. Demonstrations have also been made by **Neuman** of the germs of typhus, pneumonia and pyemia, in the urine in the course of these diseases, by **Schweiger**, of the contagious character of the urine in scarlatinal subjects, and **Rimann** has positively proved the passage of bacilli through the kidneys. As a further proof of the elimination of germs by these organs **Purdy** refers to the renal infection that frequently occurs in the course of general tuberculosis.

Concerning the frequency with which typhoid bacilli may be present in the urine, opinions vary. **Bouchard**, more than a decade ago, estimated the presence of bacilli in fifty per cent. of cases. **Gwyn**[2], more conservative, places their occurrence in twenty to thirty per cent. of all cases. He also quotes **Petruschky**, who calculated that in one case one hundred and seventy millions of bacilli were present in one cubic centimetre of the urine, and saw bacilli persist in one case for three months after convalescence. From a comparison of the results obtained by several observers he concludes that the bacilli generally appear in the urine in the second and third weeks of illness, and may persist for months or years, and when present they are usually in pure culture, often so numerous as to make freshly-voided urine turbid, and may then be detected by a coverslip examination.

These facts admit of no doubt as to the germ-carrying capacity of the urine, and as to the need for sentinelling the urinary organs as well as the respiratory and alimentary tracts in all the generally infectious diseases. The practicability of interference is well illustrated by the disappearance of typhoid bacilli from the urine after irrigation of the bladder with bichloride of mercury, and the internal administration of urotropin. **Gwyn** mentious six cases in which thirty or sixty grains of the latter have quickly removed the bacilli.

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[1] "Practical Uranalysis and Urinary Diagnosis:" **Purdy**.

[2] *Bulletin of the Johns Hopkins Hospital*, June, 1899.

ANNOTATIONS.

FOREIGN BODIES IN THE APPENDIX.

The revulsion of professional opinion that followed the dissolution of the "famed cherry pit" in fecal concretions has been quite complete. It has even gone to the extremity of skepticism regarding the presence of true foreign bodies of any description in appendices ceci vermiformes. The pendulum is in motion again, however, and returning to a proper mean. It has been found to be generally true that, while fecal concretions are frequent (in five to ten per cent. of cases) in ordinary autopsies, with various causes of death, in that class of cases foreign bodies are seldom found. In cases of appendicular trouble, however, foreign bodies are more often met. As to frequency, reports vary. In a series of one hundred and fifty-two cases, **Fitz** is reported[1] to have found foreign bodies in twelve per cent. **Treves** is quoted[2] by **Ewald** as estimating foreign bodies in one-eighth of all cases, but this the latter believes too high. **James F. Mitchell**, who made a study of fourteen hundred fatal cases of appendicitis, found[3] foreign bodies in seven per cent. Among the bodies reported as found are pins, shot, apple seeds, gall-stones and lime concretions, grape seeds, pieces of bone, bristles, fish bones, lead buttons, intestinal worms, hairs, a nail, and a thirty-two calibre pistol cartridge. When the presence of foreign bodies is reported by such observers as **Osler**, **Fowler**, **Park**, **Abbe**, **Ferguson**, **Ransohoff**, and others, besides those mentioned above, some more consideration, it would seem, is due this fact.

CONTEMPORARY.

THE ANTIVIVISECTION FAD.

[SAINT LOUIS MEDICAL AND SURGICAL JOURNAL.]

This seems to be essentially the age of fads and of faddists. To an intelligent person each one appears to be more ridiculous than its predecessor. A fad of comparatively recent date, which numbers thousands among its followers, is Christian science. It has proven very profitable to its inventor, who has cleared many thousands of dollars through the sales of books and paid lectures. This science (?) has among its followers (and they are in a majority) corn-fed female philosophers and long-haired male nincompoops. It has succeeded in murdering so many innocents that it is but a question of a short time before the law will assert itself for the protection of the misguided and ignorant. A more modern fad is osteopathy. Like ARTEMUS WARD's kangaroo, it is an "amoosin' little critter." It is so amusing that it is even hilarious. We cannot understand how the profession ever took the matter seriously. The reduction of imaginary dislocations has acted well on imaginary patients, and the massage has done no harm. The disciples of this cult employ no medicines, and it is in this feature alone that it is good. The whole thing is an error, and if left to grope in its own darkness it will soon be lost in that complete caliginosity which swallows all things dependent upon obscurity. As in other cases which have occurred before, the regular medical profession have given these people that prominence which they sought and thus make them known, where otherwise they would have sunk back into deserved oblivion.

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[1] "Twentieth Century Practice of Medicine," Volume VIII.

[2] "Twentieth Century Practice of Medicine," Volume IX.

[3] *Bulletin of the Johns Hopkins Hospital*, March, 1899.

That to which we more particularly desire to call attention is a peculiar sentimental obliquity, characterized more by hysteria than by good sense. Whilst we characterize it as a fad, others have been less charitable and call it a craze. What we refer to is the antivivisection spasm. A number of hysteric women and milksop males combine themselves into a high court, and emit spasms in the form of resolutions on a subject concerning which they know absolutely nothing. They spend hours mouthing and denouncing something purely imaginary. They construct their little straw men and then gleefully proceed to knock the stuffing out of them. The whole movement has been conceived in iniquity and brought forth in darkness; but the petticoat contingent has been strong in spreading the tirades and misrepresentations upon which the flimsy superstructure of antivivisection wobbles. It has been said that nothing could thrive on error; yet, here is a shining example. It not only thrives but fattens. It is true that it gains no strength; nor can it, for such cannot be given to a gelatinous spine. Antivivisection is an appanage of "refined" persons not of the intelligent classes. Pity 'tis that it seems impossible to make truth a necessary part of the self-deception practiced by the intellectually weak upholders of this end-of-the-century delusion.

The greatest strength exercised by these psychologic degenerates has been made manifest in England, where freedom is supreme according to the boastful pretentions of our trans-Atlantic cousins. By parliamentary enactment vivisection experiments are not permitted to be made in the British Isles. The result is that Englishmen cross the channel and do their work in Paris. Such men as **Ferrier** and others, who have made some of the grandest discoveries in medicine, are compelled to depend upon the generosity of an hereditary foe to be enabled to do good to humanity. But that is the argument of the antivivisectionists—better a thousand human beings suffer and die than that one poodle be made useful in the cause of true humanity. For be it remembered that vivisectionists are brutal butchers who delight in torturing meek, brown-eyed dogs, et cetra, and only desire to tear innocent brutes limb from limb and dance about in fiendish glee at sight of the tortures they so delight to inflict. It is actually nauseating to read the twaddle published in their official organs. They make themselves supremely ridiculous in their hyperesthetically distorted images of a pervert imagination and simply disgust those who know what vivisection is in reality. They deliberately distort facts, avoid the truth, and display an amount of childish ignorance which would be amusing were it not for the fact that the consequences might become actually injurious to all progress.

The dawn of a new century is upon us and we are encouraged to hope that its light will throw such strong effulgence as to drive away and disperse the fogs which have been called up by the benighted intellects of fad-ridden imbeciles.

MEDICAL NEWS.

THE GRAND RAPIDS ACADEMY OF MEDICINE.

The annual meeting of this energetic and prosperous organization occurred at the Morton House on the evening of the 6th instant under the presidency of Doctor Herbert Maxon King, whose address may be found in another department of this issue. At the conclusion of the literary program and the selection of officers, the members adjourned to the ordinary of the hotel where the customary banquet was discussed and social amenities enjoyed. The welfare of the academy for the ensuing year will be entrusted to the following officers: President, Doctor Joseph B. Whinery; vicepresident, Doctor Richard R. Smith; secretary, Doctor Charles E. Hooker; treasurer, Doctor Earl Bigham. Committee on Ethics: Doctors John E. Brady, Eugene Boise, J. Orton Edie, Louis A. Roller, and Elizabeth Earl.

A SAD DEMISE.

Doctor Joseph C. Mulhall, of Saint Louis, met death in that city January 11, 1900, the result of a self-inflicted gunshot wound. He had long been a sufferer from an incurable nervous disorder which induced the act. Doctor Mulhall was born in Saint Louis in 1851 and graduated from the Saint Louis Medical College in 1873. After a course of study in Dublin, Vienna and Berlin, during a portion of which time he was assistant to Sir Morell Mackenzie, he returned to his native city and began the practice of medicine. He soon gained distinction in the profession and secured early recognition as a laryngologist of great skill. For many years he occupied the chair of Diseases of the Throat and Chest and of Climatology in the Beaumont Hospital Medical College. As a thinker, he was analytical and cogent and possessed the faculty of reasoning back through the complicities of surroundings until he reached the simple truth. That he had within him the spirit of a philosopher is evidenced by a bit of kindly advice given to a friend: "It pays to tell the candid truth when they ask for it—by and by they come in droves to hear it." His untimely demise leaves a void in medical circles in Saint Louis.

RECIPROCITY IN PRACTICE.

It is interesting to note, anent the Detroit movement for interstate medical reciprocity, that the Illinois State Board of Health recently adopted the following resolution, embodying the principle sought to be promulgated by its originators:

Resolved, That applicants for a State Certificate to practice medicine and surgery in the State of Illinois, who have been examined and licensed by other State Examining Boards maintaining standards not lower than those provided for in the Act to Regulate the Practice of Medicine in the State of Illinois, in force July 1, 1899, shall be granted certificates without further examination, on payment of fees required by the act; providing that the applicant, who must be a graduate of a medical college in good standing with this Board, shall present with his license an affidavit from the President or Secretary of the State Examining Board showing that the requirements of said Examining Board at the time of his examination were equal to those exacted by this Board under the present law; and providing further, that the said State Examining Board will grant licenses without examination to applicants holding certificates issued by the Illinois State Board of Health under the act now in force.

THE ATTORNEY GENERAL ON THE CHANDLER ACT.

In response to a request from Doctor Beverly Drake Harison, secretary of the Michigan State Board of Registration in Medicine, Attorney General Horace M. Oren has rendered an official opinion covering the points in the Chandler act—so far as they affect registration—concerning which there might arise differences of opinion. As the Attorney General is the highest authority to which the board can appeal until the Supreme Court of Michigan passes upon and construes the law, his reply may be considered as fairly outlining the policy of the board. His opinion was asked regarding the board's attitude in dealing with the following classes:

Class I.—Graduates of reputable and legally authorized medical colleges, who registered under the old law between September 7, 1883, and September 23, 1899. What should be deemed "sufficient proof" of such registration? *Opinion.*— * * * "Sufficient proof" means the presentation of such evidence as would satisfy reasonable men of the truth of the facts claimed. It is my opinion that applicants, basing their right to registration upon the fact that they are graduates of a legally authorized medical college, should be willing to produce their diplomas, and, if necessary, proof of the genuineness of such diploma, which would be the best evidence of such graduation, or give satisfactory reasons for not so doing. In the absence of such a showing, if deemed necessary by said board, it is my opinion that said board would have authority to refuse a license or certificate of registration. * * *

Class II.—Graduates from colleges which require no attendance, who registered between September 7, 1883, and September 23, 1899, basing their registration upon the possession of such diplomas. *Opinion.*— * * * It is a general rule of statutory construction that the intent of the legislature governs. * * * A careful examination of sections two and three, of the acts of 1883–7, * * * lead me to the conclusion that the legislature only intended, by its enactment of section two, to permit the bona fide graduates of legally authorized and reputable medical colleges to practice medicine in this state. It is such bona fide graduates of legally authorized and reputable medical colleges legally licensed to practice medicine under the act of 1883, and as amended in 1887, that the provisions of subdivision one, Section 3, Act Number 237, 1899 [see The Physician and Surgeon, June, 1899], apply to. A license to practice medicine under the act of 1883, or the act amendatory thereof, which the holder procured by fraud or misrepresentations, would not, in my opinion, be a legal registration such as your board would be compelled to recognize. * * * It is not the policy of the law to protect fraud, no matter in what guise it presents itself. The extent to which persons have been able to purchase diplomas purporting to certify that the holder is a graduate from a medical college, has become notorious, and the Independent Medical College of Chicago has forfeited its charter by resorting to such illegal practice. * * * Such diplomas are a fraud upon the people, and I do not believe our courts would hold them sufficient to entitle the holder to legal registration under our present law, or the laws of this state prior thereto. * * * I would, therefore, say * * * that in my opinion your board has authority under the act of 1899 to determine whether or not applicants were legally registered and licensed to practice medicine under the acts of 1883–7. If it should appear to your board that any such applicant resorted to fraud in securing a license under said acts, and that they were not bona fide graduates of a legally authorized medical college of a reputable character, it would be the duty of said board to refuse a license to practice medicine to such applicants without an examination.

Class III.—"Years of practice" physicians, who registered between September 7, and December 7, 1883—the only time within which legal registration of that class could be made under the law of 1883—from whom the board had required affidavits of three citizens corroborative to the fact of their having practiced for five years prior to September 7, 1883. *Opinion.*—I can see no reason why this would not be a reasonable compliance with the requirements of the statute, showing a legal registration under the act of 1883.

Class IV.—Practitioners (nongraduates) who registered after December 7, 1883. *Opinion.*—Under act 167 of 1883, section 2, nongraduates licensed to practice medicine under said act were limited to those engaged in the practice of medicine at the time said act took effect and who had been continuously so engaged in this state for a period of five years prior thereto. * * * This law makes no provision for the licensing of nongraduates after the lapse of three months from the time said act took effect. * * * I would, therefore advise you that nongraduates, having failed to secure a license to practice medicine within the time provided for by the act of 1883 are not legally registered thereunder and should be required to submit to an examination before receiving a license to practice medicine.

Class V.—Practitioners who registered as undergraduates between September 7, 1883, and September 23, 1899, and who have not been practicing with and under the instruction of a registered physician. *Opinion.*—This classification is covered by answer to number four. [Examination required.]

Class VI.—Students or undergraduates of medicine. *Opinion.*—This classification is also fully covered by answer to number four. [Examination requred.]

Class VII.—Practitioners, residents of foreign countries and other states, who have registered in the time specified by this act by mailing their affidavit and fee to a clerk of one of the counties of this state. *Opinion.*—* * * The filing of the necessary affidavit for the purpose of securing a license to practice medicine clearly shows the intent of the person filing such affidavit, * * * and it is my opinion that a residence in the state was not absolutely essential to securing a license in conformity with the statute. * * *

Class VIII.—Practitioners, residents of foreign countries or other states who filed their affidavits with county clerks, but do not state therein that they intend practicing in such county, or that they reside therein. *Opinion.*—This classification is fully covered by my answer to number seven. [Affidavit sufficient.]

Class IX.—Practitioners, graduates of reputable and legally authorized medical colleges, who have registered under the old law within the time specified, but who have failed to state any fact other than their graduation. *Opinion.*—Strictly speaking, these applicants have not fully complied with the requirements of the act of 1883, as amended, and before issuing a license to such applicants under the act of 1899, your board should require sufficient proof of the requisite facts not covered by such affidavits.

Class X.—Graduates of reputable and legally authorized medical colleges who have registered under the old law since September 23, 1899, the date when the repeal took place. *Opinion.*—The act of 1899 expressly repeals act 167 of 1883, and the act of 1887 amendatory thereof. Except as otherwise provided in said act, the act of 1899 took effect September 23, 1899. After that date no person could become legally registered and licensed to practice medicine in this state under the act of 1883, or as amended in 1887, and all such licenses should be ignored by your board. Persons coming under this classification should make application for a license under subdivision 5, section 3, of the act of 1899 [see The Physician and Surgeon, June, 1899.]

Class XI.—Practitioners who registered between September 7, 1883, and September 23, 1899, as graduates of reputable and legally authorized medical colleges, but are now unable to produce any proof of that fact. *Opinion.*—* * * Under all of the circumstances of each individual case, the members of said board must exercise their best judgment, and if possible see that no injustice be done the state or the applicant under the law.

Class XII.—Applicants who state in their affidavit that they are graduates of a certain reputable college, but produce a diploma from another not named in their affidavit. *Opinion.*—I would answer the above the same as number eleven. [Board to exercise judgment.]

Class XIII.—Practitioners who have registered under the old act as graduates of medical societies. *Opinion.*—* * * Applicant should be able to show that the medical society of which he was a graduate was in all respects equal to a medical college; that it had authority and did require the requisite course of instruction, and that it had authority to and did confer upon graduates the usual degrees of medicine; otherwise the applicant would have no standing before your board under subdivision 1, section 3, of the act of 1899.

Class XIV.—Practitioners who have registered as graduates of clairvoyant and similar societies. *Opinion.*—This class of practitioners would have no standing as physicians and surgeons within the meaning of the act of 1899, or acts prior thereto.

Class XV.—Practitioners who registered previous to the act of 1883 going into force. *Opinion.*—* * * I am of the opinion that the courts would hold such registration sufficient under the old law.

Class XVI.—Can a nongraduate or student claim the right to go before the board for examination? *Opinion.*—Any person, whether a graduate from a medical college or otherwise, would have a right to go before your board for examination in accordance with subdivision 3, section 3, act of 1899. * * *

MINOR INTELLIGENCE.

Carbolic acid is now being prepared in the form of tablets from which solutions of various strengths can be made.

Doctor Theodore Lyster, a former resident of Detroit, is now staff surgeon at military headquarters in Havana, Cuba.

Koch's Institute for Infectious Diseases at Berlin has commenced ten-day courses on the plague in a laboratory outside of the city.

The Royal Academy of Medicine of Dublin has conferred honorary membership upon Doctors William Osler and Howard A. Kelly of Baltimore.

Doctor A. J. Thomson, of Cadillac, Michigan, died in that city January 27, aged fifty-nine years. He was a graduate of the University of Michigan, medical class of 1879.

That all things connected with Christian science are not delusions and that some things are material is evidenced by the recent Christmas gift from Mother Mary Baker G. Eddy to her son of a check for ten thousand dollars and a residence valued at fifteen thousand dollars.

THE next meeting of the Tri-State Medical Society of Illinois, Iowa and Missouri will be held April 3, in Saint Louis, under the presidency of Doctor O. Beverley Campbell, of Saint Joseph.

THE value of the Roentgen rays in field surgery in South Africa has become so apparent that the authorities have ordered a fresh equipment of apparatus and skilled operators are being hurried to the front.

SPIRITS, malt liquors and wines are consumed in the United States annually to the extent of one billion gallons. The breweries in the world number fifty thousand with an output of six and one-half billion gallons annually.

A HOSPITAL to be known as "The Robert B. Brigham Hospital for Incurables" will be erected and maintained in Boston with the proceeds of a bequest of five million dollars made to charity by Robert B. Brigham, the wealthy hotel proprietor, recently deceased.

THE time for the meeting of the American Medico-Psychological Association at Richmond, Virginia, has been changed from May 1–4 to May 8–11, in order to enable members to attend the Congress of Physicians and Surgeons in Washington, May 1–4, and avoid a conflict of dates.

THE conscience of the religious press has again been quickened. The *Christian Herald* puts itself on record as declining to publish the advertisements of quacks and patent medicines. This may mean a material loss to the publisher but the correctness of the position assumed cannot be questioned.

AN operation recently performed in Brooklyn upon a young man whose occupation had been that of swallowing metallic substances, revealed the cause of his stomachic distress to be two nickel and one brass watch chains, two keys, six hairpins, ten nails, one ring, and one hundred and twenty-eight pins.

LEGISLATIVE authority will be invoked in New York state to guard against the possibility of embalming or burying the living. A bill is asked to prohibit the taking of steps preparatory to interment until a certificate of death shall have been furnished by a physician after a careful personal examination.

APROPOS the late ruling relative to osteopathy in Kentucky, it is interesting to note that in the decision of Judge Sterling B. Toney, of Louisville, the following pregnant sentence was used: "It is singular indeed that in an enlightened age like this such humbug schools and ignorant pretenders could find recognition by the laws of any state."

A VERMONT court recently decided that an accident insurance company was liable in a case wherein the policyholder died from perforation of the intestine due to some foreign material swallowed. The same line of reasoning would seem to bring death from typhoid fever within the category of accidental claims. The ingress of the Klebs-Loefler bacillus per orem must be considered accidental, and when death ensues from resultant perforation of the bowel it would seem to bring the case within the ruling of Vermont justice.

THE execution of the will of Mrs. Caroline Bower Croft, which bequeathed one hundred thousand dollars to Howard University, has recently brought this institution into possession of that liberal sum. It will be devoted to the study of carcinoma, for which purpose the gift was specifically designated by the devisor.

THE supposition has long obtained that death by hanging resulted from either asphyxia or dislocation of the cervical vertebræ, but an autopsy on the body of a murderer, recently hanged in Philadelphia, disclosed that traumatism of the structures of the neck was the cause of death, which, however, did not occur until eighteen minutes after the body fell.

THE annual meeting of the Western Surgical and Gynecological Society was held at Des Moines, Iowa, December 27 and 28. Doctor O. Beverley Campbell, of Saint Joseph, was elected president; Doctor A. C. Bernays, of Saint Louis, vicepresident; and Doctor George H. Simmons, of Chicago, secretary, for the ensuing year. The 1900 meeting will convene at Minneapolis, December 27 and 28.

THE United States army, navy and marine hospital service will be ably represented at the International Medical Congress at Paris, next August. President McKinley has appointed Surgeon-General Sternberg and Surgeon La Garle from the army; Surgeon-General Van Reypen from the navy, and Surgeon General Wyman and Assistant Surgeon Rosenau from the marine hospital service.

COCAINE anesthesia by injection into the spinal canal is a surgical innovation in the performance of capital operations of the lower extremeties and of the pelvic organs. Tuffier, of Paris, and more recently Matas, of New Orleans, have reported favorable results in operative procedures wherein the patient was submitted to the influence of this agent. Others have likewise attested the value of its use.

LORD CURZON, the Viceroy of India, has such faith in the power of the serum treatment to prevent the plague, that he has subjected his entire family, including himself, to inoculation. He stated in a recent address that personal observation in his visits to the hospitals and plague camps showed that whereas the mortality with the treatment only numbered twenty per cent., it rose to eighty per cent. without it.

DOCTOR JAMES MCKEAN CATTELL, professor of psychology in Columbia University, has recently experienced the pleasure of having this chair endowed by John D. Rockefeller to the amount of one hundred thousand dollars. The doctor enjoys the distinction of having been the first exclusive professor of psychology appointed and doubtless appreciates the munificent gift of this liberal multi-millionaire.

THERE might be cause for self-congratulation in the report of Secretary of War Root regarding the health of the army in the Philippines, if it were not for the manifest unfairness and inaccuracy of comparing the death rate of a body of picked and carefully selected young soldiers with one that includes infants and the aged. The annual death rate from disease in the Philippines is given as 17.20 per 1,000; in Washington, 20.74; in Boston, 20.09; in San Francisco, 19.41. The death rate in Michigan for 1899 is reported as 14.10.

DURING the recent American-Spanish war some of the brightest minds in the ranks of the profession in the United States volunteered their medical services and went to the front, accepting the modest pay of the rank to which they were appointed. In marked contrast to this is the announcement in the *British Medical Journal* of the appointment by the British government of Sir William MacCormac, Frederick Treves and G. Makin as consulting surgeons to the medical service of the army in South Africa with a compensation to each of five thousand pounds ($25,000) a year.

RAYS similar to those of Röentgen have recently been discovered by the French physicist Bequerel. This investigator has found that metallic uranium and certain other chemical combinations of this element possess the quality of emitting rays that are not affected by external influences. These rays will penetrate wood, paper and like material, but not animal tissue. The discovery relegates keyhole espionage to oblivion and materially lessens the labors of the chaperon and the curious, as it will now only be necessary to focus the apparatus upon a door in order to reveal the situation.

THE enlargement of the United States army has necessitated an increase in the medical force. A bill has been prepared by Surgeon-General Sternberg, and will be urged for passage, that provides for an increase of four assistant surgeon-generals, ranking as colonels; ten deputy surgeon-generals, ranking as lieutenant-colonels; thirty surgeons, ranking as majors; eighty assistant surgeons, ranking as lieutenants. In addition to these acting assistant surgeons will be appointed who, after a six months' course at the Army Medical School in Washington, will be commissioned to fill existing vacancies.

THE Medical Society of the State of California will convene in annual meeting at San Francisco in April. A matter of prime importance to be considered by this body will be the securing of the passage of a law creating a board of state medical examiners, in order to check the pilgrimage of physicians from every clime, and with every sort of diploma, into that commonwealth. Another subject that will undoubtedly enlist the attention of members will be the prevention of further increase and spread of tuberculosis, not, however, by quarantine, but with special reference to educating people as to the best measures of preventing infection. A commendable innovation will be the limiting of authors in the reading of voluntary papers to fifteen minutes. The society will be divided into two sections, and the sessions will be prolonged over three days.

NU SIGMA NU, the secret medical fraternity, recently met in triennial session at Ann Arbor. Delegates were present representing chapters throughout the country. The convention conferred honorary degrees upon doctors Victor C. Vaughan and G. Carl Huber, both of Ann Arbor. The following officers were elected: Honorary president, Doctor Nicholas Senn, of Chicago; president, Doctor James G. Hyndman, of Cincinnati; vicepresident, Doctor William A. Evans, of Chicago; secretary, Doctor Will Walter, of Chicago; treasurer, Doctor Evatt Mathers, of New York; historian, Doctor William Wallace, of Syracuse; custodian, Doctor Thaddeus Walker, of Detroit. The session closed with a banquet at Hotel Cadillac in Detroit, and postprandial speeches were made by Doctors H. O. Walker, of Detroit, William Evans, of Chicago, J. P. McMurrich, of Ann Arbor, and J. G. Hyndman, of Cincinnati. Syracuse, New York, was selected as the place at which the next meeting will be held.

RECENT PUBLICATIONS.

REVIEWS.

OVER ONE THOUSAND PRESCRIPTIONS.*

THIS is a large collection of prescriptions, many of them under the familiar names of prominent and successful practitioners. Every disease and condition is apparently touched upon, and often many times over. A copious index of references is appended, that aids greatly in the use of the book.

*The Illustrated Medical Journal Company, Publishers, Detroit, Michigan. Cloth. One hundred pages. Postpaid $1.00.

MATERIA MEDICA FOR NURSES.*

THIS work may be strongly recommended to nurses both as a text and reference book on materia medica. The author has shown a proper discrimination in the subject matter and presented it in a clear and concise style.

*By Emily A. M. Stoney, Graduate of the Training School for Nurses, Lawrence, Massachusetts; late Head Nurse in Mercy Hospital, Chicago, Illinois; late Superintendent of Training School for Nurses, Carney Hospital, South Boston, Massachusetts; Author of "Practical Points in Nursing." W. B. Saunders, Philadelphia, 1899.

AN ATLAS OF PATHOGENIC BACTERIA.*

THE sixteen colored plates comprised in this atlas originally appeared in the "International Medical Annual" for 1898 and 1899. They so perfectly represented the microscopical appearances of the germs illustrated that the publishers felt warranted in presenting a separate publication of them. The short introductory chapter is a truthful statement of the practical value of this subject to the general practitioner.

*By Samuel G. Shattock, F. R. C. S., Joint Lecturer on Pathology and Bacteriology in Saint Thomas Medical School, London; Pathological Curator of the Museum of the Royal College of Surgeons, London. With an introductory chapter by W. Wayne Babcock, M.D., Pathologist to the Kensington Hospital for Women; Clinical Pathologist to the Medico-Chirurgical Hospital; Demonstrator of Pathology and Bacteriology in the Medico-Chirurgical College of Philadelphia. E. B. Treat & Company, New York, 1899.

PRACTICAL EXERCISES IN COMPARATIVE PHYSIOLOGY AND URINE ANALYSIS.*

THIS is essentially a guide book for laboratory work in experimental physiology. It covers this field in a brief and comprehensive manner.

*By Pierre A. Fish, D. Sc., Assistant Professor of Comparative Physiology and Pharmacology in the New York State Veterinary College, Cornell University. Press of Andrus & Church, Ithaca, New York.

MASSAGE AND THE SWEDISH MOVEMENTS.*

IN the revival of this art, once nearly lost, medicine has acquired a most valuable handmaid. The author of this book, in serving his pupils, has also done the profession a good turn by so clearly defining the principles of the manual treatment of disease, and by indicating the uses of it in particular conditions. It contains much which every physician ought to know.

*By Kurre W. Ostrom, from the Royal University of Upsala, Sweden. Fourth edition, revised and enlarged, with one hundred and five illustrations. P. Blakiston's Son & Company, Philadelphia, 1899.

DISEASES OF THE EYE.*

A WELL written, up-to-date manual, much better than some larger, so-called text-books, and safe to follow in every respect. An unusual but valuable feature of the book is Chapter XX, which is devoted to "Ocular Symptoms and Lesions Connected with General Diseases." We are glad to see that the author calls attention to the operation for iridodialysis (page 482) which was given to the profession several years ago by Eugene Smith, M. D., of Detroit. It seems to us that such a valuable suggestion should be duly credited. The paper, type and illustrations are better than the average and we take pleasure in recommending it. E. S.

*A Manual of the Diagnosis and Treatment of the Diseases of the Eye. By Edward Jackson, A. M., M. D., et cetera, et cetera. Philadelphia: W. B. Saunders.

THE ANATOMY OF THE CENTRAL NERVOUS SYSTEM OF MAN AND OF VERTEBRATES IN GENERAL.*

THIS is not an entirely new work, nor is it new to American readers. Four German editions and translations have preceded this, the first one having been much smaller and having treated only of the anatomy of the brain of man and of mammals in general. That, in an enlarged and illustrated form, constitutes the third part of this work,but it is prefaced by a short history and a consideration of the methods of investigating the central nervous system, ganglion-cells and nerves, and a review of the embryology and the comparative anatomy of the vertebrate brain. Although these are to an extent independent studies, yet the author's idea and intent has been to discover the relations and functions of the highly organized brain through a study of fundamental forms and the simplest activities. In this combination of studies—the comparative morphology of the nervous system—there is presented a new and most valuable work.

*By Professor Ludwig Edinger, M. D., Frankfort-on-the-Main. Translated from the fifth German edition by Winfield S. Hall, Ph. D., M. D., Professor of Physiology in the Northwestern Medical School, Chicago; assisted by Philo Leon Holland, M. D., Instructor in Clinical Neurology in the Northwestern University Medical School, Chicago, and Edward P. Carleton, B. S., Demonstrator of Histologic Neurology in the Northwestern University Medical School, Chicago. Illustrated with 258 engravings. 6½ x 9½ inches. Pages xi-446. Extra cloth, $3.00. The F. A. Davis Company, Publishers, 1914-16 Cherry street Philadelphia.

DISEASES OF THE SKIN.*

This is a concise but comprehensive and eminently practical review and reference handbook of skin diseases. Subjects are alphabetically considered and synonymous titles given without repetition of matter. Although coming so soon after the second edition this issue is a revision of the former with some new sections and illustrations added.

*By George Thomas Jackson, M. D., Professor of Dermatology in the Woman's Medical College of the New York Infirmary and in the Medical Department of the University of Vermont; Chief of Clinic and Instructor in Dermatology in the College of Physicians and Surgeons, New York. New (third) edition. In one 12mo. volume of 638 pages, with 75 illustrations and a colored plate. Cloth, $2.50 net. Lea Brothers & Company, Philadelphia and New York.

REFRACTION AND HOW TO REFRACT.*

This manual may prove helpful to the general practitioner who wishes to have a somewhat limited idea of refraction, but that it can be of much use to the specialist we do not believe. It is well written and quite fully illustrated, and offers a very fair general idea of the subject. While recommending the manual to general practitioners, we have no doubt a careful study of the book would help *opticians* to know how poorly they are qualified for the fitting of glasses. E. S.

*By James Thorington, A. M., M. D., Adjunct Professor of Ophthalmology in the Philadelphia Polyclinic and College for Graduates in Medicine; Assistant Surgeon at Wills' Eye Hospital; Associate Member of the American Ophthalmological Society; Fellow of the College of Physicians of Philadelphia; Member of the American Medical Association; Ophthalmologist to the Elwyn and the Vineland Training Schools for Feeble-Minded Children; Resident Physician and Surgeon Panama Railroad Company, at Colon (Aspinwall), Isthmus of Panama, 1882–1889, et cetera. Two hundred illustrations, thirteen of which are colored. Octavo; 301 pages. Cloth, $1.50 net. P. Blakiston's Son & Company, 1012 Walnut street, Philadelphia, Pennsylvania.

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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

PATHOLOGY AND TREATMENT OF TYPHOID FEVER.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I MUST begin by explaining that my title may lead to expectations that cannot be realized. I do not intend to attempt anything like a full discussion of the pathology and treatment of typhoid fever, but rather to consider those aspects of the former that bear more or less directly on present phases of the latter. At all times ideas regarding treatment have been modified by contemporary thought on the nature of disease, although not infrequently methods of treatment of permanent value have sprung up on the ground of an erroneous theory, or have been discovered even without theory. It seems all the more important, then, at a time when discoveries in etiology and pathology are daily announced, to stop and criticise our present knowledge, and to note what clinical observation has to say, since the final test in medicine after all is the clinical one; the therapeutist must remain master in his own house.

It is just twenty years since the bacillus of Eberth was discovered, and it is not stating the case unfairly to say that the additions to our knowledge based on it have not come up to the expectations of the early years. Remembering how long it took for the clinical and anatomical features of typhoid fever to be recognized, this does not seem strange, and it must also be said that although the work has been disappointing so far as a final judgment is concerned, yet many points of value have been discovered or confirmed. Even if we had nothing else, the knowledge of the blood-changes, including the Widal test, has added much to the certainty of practical medicine, and has enabled us to widen the diagnostic horizon of the disease to a greater extent than before, though no wider, I must add, than certain farsighted clinicians had long maintained.

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*Read before the DETROIT ACADEMY OF MEDICINE, February 13, 1900.

The question whether typhoid fever is specific, in the sense that it is caused by a germ of unvarying characteristics, seems to me not yet ready for an answer. Within the last four years, largely as a result of work with the Widal test, many who were formerly skeptical have been converted to the view of specificity. I must admit that I do not think scientific proof has yet been made, and that neither the results of bacterial cultures nor the Widal test are at present sufficient for that purpose.

Along with this goes the question whether typhoid fever is always derived from a previous case. For its answer, this question must wait until the former one is settled. At present I think a rational attitude is to assume that every case of typhoid fever may endanger other people through the excretion of the pathogenic germs by the intestines and kidneys, and to take proper precautions to prevent further infection; but, on the other hand, not to reject the diagnosis of typhoid merely because no other case can be traced out as the cause. In large cities previous cases are of course always possible. In smaller towns and in the country the long duration of life of the germ may help to explain obscure cases, or it may be that some cases of a class formerly thought to be typhoid, will be shown in future by the Widal test to be otherwise.

I wish to take up next the consideration of the pathology of the disease, or what might be perhaps more accurately called, in this paper, morbid physiology. What are the changes in the typhoid patient?

In the very beginning of such an inquiry we encounter a theory that needs scrutiny because it is widely held, and at first glance very plausible. This theory is that the seat of disease is primarily the lumen of the intestine, that is, in the intestinal contents. That this belief is really held can be seen by reference to recent medical literature, and I can perhaps not do better than quote one of the most recent writers in order to have a concrete example to discuss. This writer says: "The ideal treatment of typhoid fever depends on a primary evacuation of the gastro-intestinal tract, and a total absence of food for five or six days in order to keep the alimentary canal in as aseptic condition as possible, and to furnish no pabulum for the development of the typhoid bacilli." What are the actual facts?

In the beginning of the study of the typhoid bacillus the isolation of the germ in the stools was not often successful. Later, many investigators thought they found the germs more or less frequently, but this was at a time when the recognition of the germs was not thoroughly understood. Practically all work previous to 1890, and a good deal after that date, looking to the isolation of the typhoid bacillus, must be thrown overboard on account of imperfect technic. Since the latter date several methods have been devised for the purpose of isolating and identifying the germs, but in the hands even of some of their most enthusiastic advocates, in not more than fifty per cent. of cases can the germs be found after the first week of the disease. Even those who, like HORTON-SMITH, think the bacilli are present in the stools from the beginning, are able to find few in comparison with the nonspecific bacteria. After the first week, and up to the end of the fever, the germs are frequently encountered. And yet, if the germs growing in the lumen cause the symptoms through the absorption of their poisons, we should certainly expect enough of them present in the first week to cultivate in artificial media. This seems all the more important when we remember that the first stage is often very long.

How different are the results here from those in cholera, and how different are the clinical features of typhoid fever from all diseases known to be due to infections of the intestinal contents. It must be admitted that not enough work has been done on the intestinal contents in typhoid fever. Not only do we need more information on the life history of the typhoid bacillus in the alimentary canal, but even the nonspecific intestinal flora in typhoid patients could be studied with advantage.

Some believe that the poisons formed by such germs have an important part in the complete picture of typhoid fever. This seems hardly likely, since we cannot doubt that similar germs exist in other diseases, in which the local conditions in the intestinal wall are very much like those in typhoid fever, yet without producing symptoms even superficially resembling those of typhoid. This is particularly true of tuberculosis of the ileum.

All the evidence we have at present goes to show that after infection with typhoid germs, in susceptible people, the bacilli quickly enter the lymphoid tissue of the lower ileum, there increase, produce soluble poisons which are absorbed and cause the symptoms of the early stages of the disease, as well as the anatomical changes.

That the germs may be taken into the intestine without producing infection is obvious, from the escape of many persons exposed to the common source, but we do not know whether in such people the germs increase in the cavity of the intestines, nor how long they may remain. We know typhoid bacilli may retain their vitality for many weeks in fecal matter outside of the body, so that the problem is one of great practical importance and will perhaps be solved as soon as we have more convenient methods for the recognition of the germs.

From what has been said we are in a condition to ask whether treatment directed to the destruction of the typhoid bacilli in the intestinal canal can be of value. The theoretical answer must evidently be: not very much. By the time the disease is detected, in the vast majority of cases, the germs will be within the tissues of the body. Drugs introduced into the intestinal canal can have but little more effect on the specific germs than they would have if poured over the patient's hands. This is at least true of the specific infection, but there still remain the possible intoxications from various nonspecific germs in the intestine. Cannot these be treated with advantage? Clinical experience certainly shows that when one of a number of substances having antiseptic properties is given in typhoid fever, an improvement in the condition of the stools, of the appearance of the tongue, and sometimes of the mental symptoms often follows. It would therefore seem proper to use such drugs, provided they do not produce dangerous or unpleasant effects that might overbalance the good attributed to them. It should always be asked, in practice, when they are recommended, whether the mechanical removal of the intestinal contents, as by the use of simple cathartics or enemata, will not accomplish the same ends in a simpler manner. After a considerable personal experience with some of the so-called intestinal antiseptics, especially salol, and after seeing a good many patients treated by other drugs of that class, I have come to think they can well be replaced by the other methods indicated.

In the beginning of the treatment of a typhoid fever patient, I am still of the opinion that it is useful to give a cathartic, using a dose active in proportion to previous constipation, but not abstaining because of diarrhea. In any acute disease the intestines may be overloaded with contents, and these may become sources of danger or discomfort if not removed early. As a matter of convenience my own choice of a cathartic in this stage is calomel, largely because it is easy to take, but castor oil seems to have as good an effect. I have not been convinced that calomel has any peculiar antiseptic action. During the course of the disease enemata usually serve every purpose, there being no advantage in profuse purgation, but rather the reverse.

In the convalescence from typhoid fever it is not uncommon to find elevations of temperature that can only be explained, careful search for other causes being understood as a matter of course, by constipation. This condition may be present even with daily evacuations, the latter being insufficient. It yields rapidly to cathartics, or in most cases to enemata, but can usually, and should, be avoided by preventive treatment, as by simple enemata in the earlier stages.

It may be worth while pointing out a common source of error in connection with the effects of antiseptics in the intestinal canal. The points relied upon for evidences of efficacy are: The improvement in the general symptoms, the diminished number of bacteria in the stools, the diminution of the combined sulphates in the urine and the lessened odor of the feces. The first and last are oftenest used, on account of the technical difficulties of the other two. The first, of course, is not free from possible error but it is not so often recognized that the last is also. The typhoid stools vary much in odor at different times in the same case, even when no drugs at all have been given, and have often only an ammoniacal odor.

For the purpose of speaking of the treatment of the intestinal contents, I have been obliged to digress from the consideration of the infection. I have said that this takes place, usually, in the lymphoid tissue of the ileum, which in most cases is affected, but to a variable extent and in varying degrees of intensity in different cases. It has long been known that the severity of the symptoms is by no means parallel with the extent or intensity of the intestinal lesions. This would be difficult to understand (though an explanation might be made on the ground of varying virulence of the germ and varying reaction of the organism) if we did not know that only a part of the infection is in the intestinal wall. In practically all cases there is also an infection of the mesenteric glands, causing intense anatomical changes, and no doubt forming an important source of intoxication. Next to this comes the infection of the spleen, almost as constant and almost always severe. After these we have infections of various organs. The gall-bladder is a very constant seat, the liver also, and in many cases the blood. Just how often the blood is infected, and how early, we do not know, since trustworthy investigations have not as yet been made on a large scale. An important light is thrown on the subject by the studies made on the excretion of typhoid bacilli by the kidneys. Noted very early in the history of the typhoid bacillus, the first reports of the renal infection were discredited, just as were those regarding bacilli in the stools, on account of poor technic. Within the last few years the evidence has become more convincing, and it now seems probable, from the results of BLUMER, WRIGHT and RICHARDSON, that the kidneys are infected in about one-fourth of all cases. As a rule the bacilli only appear late in the disease, and the investigations so far made, from their conditions, could not throw light in the nature of the process in the kidneys. This elimination of bacteria by the kidneys of course has no necessary relation with the affection of the renal parenchyma, which occurs in many cases, in the early stages, and which can readily be explained by an intoxication without local infection. From my own experience I must also add that not in every case with pus and renal elements in the urine are typhoid bacilli also present in that fluid. The infection may be due to colon bacilli. It is, however, safe to look on the urine in all cases as a possible source of infection and to take steps accordingly.

We know positively, then, that in most cases of typhoid fever we have an early and often intense infection of several tissues or organs of the body. In some cases the intestinal wall may be very little involved, or may escape altogether, and although these are rare, the term enteric fever at all events is not entirely appropriate. In the tissues the germs form poisons that can act in their immediate vicinity, and on some tissues at least at a distance. When we come to inquire the nature of these poisons, the effects of which are so obvious, we encounter difficulties apparently insuperable, because we cannot produce the exact counterpart of human typhoid fever in animals. The poisons are therefore known only by their clinical manifestations, and these are difficult to understand.

It is not long since it was universally held that the symptoms and even many of the anatomical lesions in typhoid fever were due to the elevation of the body temperature. In fact at that time—not many years ago—fever and elevation of temperature were considered interchangeable terms. Now we have come to believe that elevation of temperature is only a part of fever, that term indicating a complex of symptoms the most important of which are "high temperature, changes in the functions of the heart and circulation, alterations of the functions and structure of certain organs, and variations of metabolism in various directions" (Löwit). Some of the other changes might of course be due to the elevated temperature, yet the special alterations of the circulation, of the metabolism, and of the functions of such organs as the kidneys, liver, stomach and central nervous system are more rationally attributed to the special poison of the disease.

Here we must also remember a possibility in the pathology of typhoid fever to which remarkably little attention has been paid, namely, secondary infection. It is, of course, well known that in many cases of typhoid fever other infections, such as ordinary suppurations, erysipelas, pneumococcic infections, and others have been noted. But very little accurate work has been done toward showing whether or not the disease is regularly associated with secondary infections, as is, for example, variola. The ulcerated areas in the intestine would seem to facilitate such infections, and it will be remembered that many years ago DUNIN suggested that the remittent fever of the later stages of typhoid might be due to a micrococcic infection.

It cannot be claimed that the study of its pathology has led to any discoveries in the therapeutics of typhoid fever. We are still without a specific serum treatment and from the complex lesions, if not the complex poison of the disease, are not likely to ever have one of great value.

Recent experiments go to show that a valuable immunizing method is being perfected by WRIGHT and his colleagues, and this should be of great value in time of war, or for unusually exposed persons, but is hardly likely to be useful in ordinary life, even in cities with a large number of cases.

Along with a change of view regarding the fever heat has come a diminished use of antipyretic measures of treatment. (I might refer to the belief held by some, that the elevated temperature of typhoid is a salutary process. From what we know of the typhoid bacillus, this theory cannot be seriously maintained.)

One of the most remarkable facts in the history of typhoid fever is this: That the cold bath treatment, begun as a purely antipyretic method, has survived the antipyretic medication and is now used for reasons not thought of originally, but very obvious in the light of our altered views concerning fever. I shall not discuss this method in detail, but merely point out in passing that a recorded experience of unusual extent in all parts of the world shows beyond question the value of the bath in counteracting the poison of the disease. We see this in the stimulation of the heart and circulation, thus leading directly to a better nutrition of all the tissues, and an increased secretion and cxcretion on the part of the various organs, especially the kidneys, liver and stomach and intestines; in the stimulation of the central nervous system and so leading to clearer intellect, voluntary expression of sensations, increased desire for food and drink, and more and better sleep. Incidentally, the bath, though not comparing with antipyretic drugs in the temporary effect on the fever heat, has nevertheless an effect of some importance on the temperature. One effect of the bath should be emphasized, for it seems to have an important connection with the view that the intoxication is more important than the high temperature. I refer to the diuretic effect, which was early noticed by the French advocates of the Brand treatment and by many since then. I have always paid special attention to this point, and have every reason to reiterate some statements I made on the subject four years ago ("Transactions Michigan State Medical Society, 1896"). Not only do we get under the bath treatment a greater excretion of water, but the total solids are distinctly increased, and although we have no objective means as yet of proving that this frees the body from the poisonous products of infection, yet it can hardly be doubted that this is so, and that the greater amount of fluid sent through the kidneys more certainly and more effectually removes injurious substances than would any drug acting only on the intestinal canal.

The persistence and the increased use of the cold bath treatment, in the face of an almost complete abandonment of the theory on which it was taken up anew forty years ago, is one of the most interesting facts in practical therapeutics, and shows how "*probiren geht über studiren.*"

All proposed methods of treatment of any disease must sooner or later be examined in the light of experience, which naturally tends to resolve itself into statistics. In using this method in typhoid fever we must not forget certain important facts that have altered our general standpoint. The mortality of typhoid fever is now, and for a number of years has been, lower than at an earlier period. A number of things can be said to have brought this about. In the first place our diagnosis is undoubtedly more comprehensive than before, and includes many cases less dangerous than the average.

In the next place all the details included under the terms nursing and care—so important in practice, but impossible to discuss in a single evening—have been infinitely more rationally applied than ever before. How much all these things count was well understood by all who saw certain army hospitals in 1898, where the lack of nursing, in the technical sense, permitted one to see many of the complications long banished from typhoid wards.

Finally, as an assisting factor, is increased care in the nutrition of typhoid fever cases, and if I am not already far outrunning the time permitted me, I wish to speak for a few moments on this topic.

The writer quoted early in this paper, in favor of starving out the disease, can easily find by referring to medical literature that the method is not new. Rigorous mercurial purges and absolute, that is, no diet, have been abundantly tried, but the general opinion of the profession for more than fifty years is opposed to them. It cannot be said, however, that the various methods of feeding used since that time have all been wisely devised. This is especially true of the dependence on beef-tea, at one time only too common.

Within the last few years a number of physicians working independently have enlarged the diet in typhoid to a point that makes the feeding advocated by GRAVES seem starvation in comparison, and having taken some part in experiments of this kind, I feel that some of my results and conclusions may be of interest.

Like all other problems in the treatment of disease, the diet in typhoid fever must finally be decided by the results of clinical experience. This shows that starvation is not a suitable method; that, on the other hand, owing to the destructive effects of the poison of the disease on the tissues of the body, it is impossible to keep up a complete equilibrium.

Up to a few years ago the usual diet during the fever stage consisted of milk in as large quantities as the patient could take, usually three to four pints per day, not more than a pint of some animal broth and in some cases water besides. Like many others, I have for the last ten years added to this egg-albumen and, as a routine measure, at least a quart of water besides the limewater or mineral water used to dilute the milk. The addition of a measured amount of water seemed to me just as important as the food, for I rarely find typhoid patients to show the desire for water that GRAVES, for example, noted, and yet without such an addition it is often impossible to keep up the excretion of urine to a point anywhere near normal.

Such a diet is in many cases sufficient, and has the advantages that it is easy to prescribe and leaves little to the initiative of the attendants. Two facts led me to alter the scheme. One, that in some cases, rare to be sure, milk even when peptonized, was not absorbed, but was passed through the intestine little altered; the other, that in many patients treated by the cold bath, the diet was not sufficient to satisfy hunger, and a larger amount of liquid food became tiresome to the patients. The works of BARRS and SHATTUCK, and a consideration of the behavior of certain other foods in the typhoid intestine led me to enlarge the dietary so that for some time I have used a large number of foods having the single feature in common of being soft without the possibility of hard residue which might accidentally cause perforation. This diet is not adopted in the beginning of treatment. The patient is started on milk, diluted usually with Vichy water, egg-albumen, mutton or chicken broth, water and lemonade, with the intention of reaching three pints of milk a day within three days. If this is digested well, it is continued for a few days longer, until the course of the disease is clearly defined. Then the various articles of food alluded to are added, the patient being allowed but never pressed to eat the extra diet, and the milk and broth are kept up until they are replaced by an equivalent amount of soft food. As an example, in a recent case admitted on the sixth day after the initial chill, on the fourth day, the temperature ranging from 100.4° (after the bath) to 104°, the patient took, besides thirty-eight ounces of milk, four ounces of junket, five of broth, fourteen of custard, and eighteen of water. At the end of six weeks, having had phlebitis of the left saphenous vein in the meantime, she was discharged, too early so far as the leg was concerned, but weighing only three pounds less than normal.

In a man whose temperature reached 106° before admission, and whose fever lasted twenty-seven days, seventeen in the hospital, custards, junket, ice cream and soft boiled eggs were used after the first week of treatment. In hospital practice, one cannot obtain as great a variety of soft foods as in private practice, but even such simple changes as junket, soft boiled eggs and custard have a notable effect in stimulating digestion through the appetite, raising the patient's hope of speedy recovery, and later on, satisfying the craving for solid food that is so often troublesome.

There are some things that I think should be noted constantly in carrying on this sort of full feeding. In the first place the stools should be carefully examined in order to make sure the food is being digested, as well as for ordinary diagnostic purposes. This is of course true in other methods of treatment. The thermometer, in connection with the careful daily examination of the patient's body, must be used to call attention to overfeeding, since the sensations are not always trustworthy. Last, but not least, one must be sure that the diet, no matter how mixed, still contains a sufficient amount of nourishment.

In SHATTUCK's article (*Journal of the American Medical Association*, July 10, 1897), an extensive list of diet is given, and from FITZ' more recent article (*Boston Medical and Surgical Journal*, Volume II, 1899), we learn that during the seven years this has been in use in DOCTOR SHATTUCK's wards the proportion of cases of intestinal hemorrhage was less than in patients treated in the same period on liquid diet.

Like all other innovations, this one will suffer from too enthusiastic advocates, and be retarded by theoretical objections. One of these has long been familiar in connection with feeding in typhoid, namely, that the digestive power is diminished. In some cases it undoubtedly is, even in the early stages, but by no means in all cases, and careful observations in such cases will quickly show how the condition is. The initial indigestion, it may also be said, like many other complications is best treated by the cold bath.

As I have said but little about the use of medicine in the treatment of typhoid fever, save for one symptom, I may add, for the purpose of definiteness, that I use none except for special symptoms. The rare exceptions are stimulants such as strychnia, in less marked indications coffee. Alcohol as a routine drug I have entirely abandoned, having found that the doses formerly given before or after the bath are altogether unnecessary. Hot milk internally, or hot water bags externally, more than replace spirits according to my experience.

A REPORT ON THE QUESTION OF THE CONTAGIOUSNESS OF PULMONARY CONSUMPTION.*†

BY JOHANN FLINTERMANN, M. D., DETROIT, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

WHEN, some months ago, the report of the terrible deaths of several physicians in Vienna went through the whole civilized world —deaths caused by an infection with the pest bacillus, the most deadly microbe so far discovered—the question was freely discussed whether such dangerous experiments should be carried on in laboratories of universities and hospitals, and whether such experiments were not too reckless undertakings, overrating human control of nature's forces. Vienna and the whole Austrian Empire became panic-striken, the impending danger of a murderous epidemic was thought of, the principals of the laboratories were severely criticised and an excited public threatened to mob them. The power of the most minute organism was brought to light. The manifestation of their force was terrible, the suffering and misery which they created in the limited circle where they were handled convinced even the most pronounced skeptic that bacteriology has not to deal with hypothetical quantities but with living factors. The discoveries made by the bacteriologist have enabled us to understand the causes and nature of diseases, shown us the way for finding the means to prevent disease, and will in the future provide the means to cure disease. People were stunned when the reports of the destructive nature of the Vienna infection reached them, but they are today just as ignorant as they were then of the great destruction of health and life that is being wrought in this vicinity. In the city of Detroit alone there died from July 1, 1894, to June 30, 1895, 4,604 persons. Of this number, according to my calculation, 924 succumbed to tuberculosis. This means that about one-fifth of all cases of death are due to tuberculosis. From March, 1896, to February 28, 1897, there were 4,848 cases of death. In 1,021 cases the cause of death was tuberculosis. This last report shows an increase of mortality from tuberculosis. In the city of New York there died in the year 1896, 35,000 people, and 6,000 of all these deaths were caused by tuberculosis. PROFESSOR VON LEYDEN estimates that in Germany 1,300,000 suffer from tuberculosis and 180,000 die every year from this disease. Of all the diseases the civilized world knows not one can compare in its mortality with tuberculosis. The statistics are far from giving the correct number; the frequency and mortality are greater than statistics tell.

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*The Report of the Committee to which was referred the resolution of JAMES A. POUND, member of the Detroit Board of Health, requesting physicians to report all cases of tuberculosis of the respiratory organs.

†Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

The committee recently appointed by this society to report on the motion of a member of the Detroit Board of Health—that all cases of tuberculosis of the respiratory organs should be reported to the local health board as a contagious disease, and that all houses from which cases of death from tuberculosis of the respiratory organs are reported should be disinfected—respectfully submit their opinion concerning the compulsory notification of cases of tuberculosis of the respiratory organs. Our first objection is to the term "contagious disease," as this expression does not properly harmonize with the prevailing view of the profession on the term "contagious." Eruptive fevers are affections which are spoken of as contagious diseases.

The proposition of compulsory notification has been made in some states and cities, as in Michigan, Buffalo, and quite recently in New York City. It is not a new thing, for a hundred years ago the King of Naples issued a decree commending it.

"In Rome at least, and I suppose throughout Italy, strict and rigidly enforced laws of notification and disinfection still exist. When a notification of a case of tuberculosis is received, the house is visited by a medical sanitary inspector. He gives complete instructions to the attendants or to the family. The attending physician is obliged to see that all handkerchiefs, night dresses, bed linen, et cetera, are thrown into a receptacle containing proper disinfectants. At regular intervals the disinfectors call and remove the soiled articles, thoroughly sterilize them, then wash them and return them to the owner. This is done at the municipal expense in cases of poor people. Others pay according to their means. It is forbidden to wash any article belonging to a tuberculous patient outside of the lazarette. All rooms which have been occupied by tuberculous patients are cleaned and disinfected in the most thorough manner, and a record kept by the authorities of all houses in which tuberculosis occurred, which can be consulted by those desiring to hire or buy a house."—"Public Health in Rome:" WILLIAM G. MACDONALD M. D.—*Boston Medical and Surgical Journal*, February 4, 1897.

Before discussing the proposition of compulsory notification we would like to investigate what other means can be resorted to for the prevention of pulmonary tuberculosis.

Today every intelligent physician must admit that tuberculosis is an infectious and communicable disease. The tubercle bacillus is the cause of tuberculosis. Where there is a case of tuberculosis there is the tubercle bacillus. In parts of the globe where no tuberculosis exists, no tubercle bacillus is found. Careful clinical observation, experiments on animals, and the latest investigations of biologists have proven that the immense mortality from tuberculosis is due to the fact that a certain microorganism with distinct properties has been found in all cases of tuberculosis. If we take into consideration that the death rate from tuberculosis in a great many cities is more than one-seventh to one-fourth of all cases of death, and if we call to mind the length of time this disease runs, the suffering and misery it brings in its course, the loss of time, money, and comfort it involves, and how immensely it endangers everbody who comes in contact with persons suffering therefrom, causing them loss and suffering in turn, and finally in both cases death, certainly it should, in the face of all this, be the highest aim of every medical man to lessen the danger of infection, to look for the sources from whence the danger comes and to get a full knowledge of the true nature of the disease, its causes, the means to prevent its spread and ultimately to destroy it.

The tubercle bacillus has been found everywhere where tuberculous patients move. What we eat, what we drink, the houses in which we live, the clothes we wear, the furniture, the draperies, the carpets covering the floor, the dust in the streets, the air in the electric car, the luxurious seats of our palace car, the beddings of the magnificent sleeping coaches, the richly furnished apartments of our modern hotels, the modest rooms of the common boarding houses, the staterooms of our steamers, the air in the crowded store, public buildings, churches, assembly rooms, theatres, libraries, the dentist's chair, the operating tables in the hospital, the ambulance carrying the wounded and sick, the crowded waiting rooms of lawyers and doctors, the court room, the concert halls, the hospital, all of these are liable to be infected by the tubercle bacillus. If in a city like New York the death rate from tuberculosis was more than six thousand from 1896 to 1897, we can readily imagine how large the number of tuberculous patients must be, and how great the chances to become infected. It is certainly of great importance to apply all means by which the prevention of this disease can be accomplished.

It is of the utmost importance that students in medical colleges be taught in a way which will insure thorough scientific training to the end that they may become familiar with scientific methods of investigation. A preliminary education greatly facilitates the study of medicine and other branches of the medical sciences. For this reason only students should be admitted who have received a thorough literary education. The clinical education should be thorough that diagnosis may be developed to a degree that will make students competent practitioners after having had practical clinical experience for two years subsequent to graduation. The diagnosis of incipient cases of tuberculosis is such an important factor in the prevention of spreading of tuberculosis that the student of medicine should have, before all other things, the best knowledge of tuberculosis, its nature, course, dangers, causes, et cetera, before entering upon the practice of medicine. Practice must be regulated, only such persons being admitted who have undergone the most severe examination before a state board of examiners. *Salus respublica suprema lex.*

The tuberculous patient becomes infected by a virus which comes from outside the body. The tubercle bacillus is the virus. The virus comes either from a tuberculous patient or from an animal which is affected by tuberculosis, in the latter case by contact with such an animal or by ingesting meat or milk obtained from such an animal. The tubercle bacillus is in the sputum expectorated by the tuberculous patient. The sputum is very rarely directly transmitted to a healthy person, but is usually deposited on the floor or in some improper receptacle, as handkerchief, old rag, et cetera, where it becomes dry, mixed with dust, and is finally blown into the air, and finds, in such a manner, its way into the respiratory tract of man. The sputum might stick on the fingers, and is liable to be distributed to any part of the body, from whence it might gain entrance into the system, mostly into the respiratory organs. The public ought to be enlightened on this subject. Health boards should publish circulars containing information on tuberculosis, to be distributed amongst the people.

The public should be taught never to expectorate on the ground. Proper vessels should be deposited everywhere for receiving the sputum, they should be filled with a disinfecting fluid, and carefully handled and cleaned by competent men. Nowhere should sputum be deposited except in such places as render its disinfection possible. Clothes, rags, et cetera, used for receiving sputum, should be destroyed by fire or disinfected by boiling. No street should be swept until water has been sprinkled to prevent the dust becoming spread through the air. Street cars, railroad coaches, cabins and state rooms on steamboats, and public conveyances should be cleaned by men properly instructed by the health board. These places should be examined from time to time as to their sanitary conditions, and should be reported to the health board. Disinfection should be the rule. Hotels, boarding houses, public meeting houses, et cetera, should be cleaned and inspected in the same manner, and their sanitary condition reported to the health authorities.

Rooms in which a large number of people work, and wherein the work is of such a nature as to cause a great amount of dust to be thrown in the air must be kept scrupulously clean. The ventilation should be made complete. The people working in such rooms should be required to carefully avoid spitting on the floor, to expectorate into vessels carefully disinfected and kept thoroughly clean. In factories the most careful sanitary inspection should be observed. The people working therein should from time to time be examined as to their personal sanitary condition. The cleaning of factories should be done in the most systematic manner. A proper system of factory cleaning should be worked out by the health board. The school is an institution which deserves the greatest attention, as here children meet, coming from different houses, different parts of the city, of different descent, of different states of health and physical development—human creatures in whom slight disturbances of normal functions very often cause serious disturbances, impairing health forever, and frequently leading to death. The condition of the health of the child should be known to the teacher. Children affected with scrofula or manifesting symptoms of tuberculosis should be carefully observed. However, their presence in the school room is not desirable. It is only a question of time when a physician will be appointed for every school, whose duty it shall be to examine teachers and children and see that adequate measures are adopted to prevent the spreading of infectious and contagious diseases. The same sanitary precautions should be observed regarding the deposition of sputum and the cleansing of rooms in school buildings, as is proposed for other institutions. Every educational institute should be under the sanitary inspection of the health authorities.

People should be taught how to keep well and how to conduct themselves when sick, in order not to endanger the health of their comrades. Houses in which cases of death from tuberculosis are reported should be disinfected and all material which is not of any value should be destroyed by fire. The sanitary conditions of these houses should be investigated and means be urged to make such premises safely inhabitable. There should be in every city and community a public institution for disinfection.

All houses should be under strict sanitary inspection and the frequency of diseases and their nature should be reported, in some way, to the health board. The oftener such reports are made the better it is for the sanitary condition of the community. Every time the occupant of a house moves to another house such removal should be reported. The reoccupation of such a house by another tenant should be allowed only after a careful sanitary inspection, principally as to the presence of the tubercle bacillus. Places in which food and commodities of life are sold or manufactured should be under the rigid inspection, not merely the articles sold and manufactured, but also the persons who deal in such articles and who handle them.

Hospitals, asylums (private or state), prisons, orphan asylums and public charity institutions should be kept under close observation. It should be the rule that all cases of tuberculosis be strictly isolated, the room in which they are disinfected, and the material with which they have come in contact either carefully disinfected or destroyed, thus making it impossible to endanger the other inmates of such institutions. Waiters should be instructed regarding self-protection against infection. The tuberculous patient should be kept under the most favorable sanitary conditions. Good food, abundance of fresh air, pure water, frequent bathing and outdoor life as much as possible are the means by which the patients are the most benefited and the spreading of the disease is prevented. It would, perhaps, be safer to have special institutions for the insane and criminals suffering from tuberculosis.

All public institutions should report every month the number of cases of tuberculosis and the number of deaths therefrom. The inmates of such institutions should be frequently examined as to their condition of health.

City, county, and all public physicians should report every case of tuberculosis which comes under their observation. It should be left to the discretion of the Board of Health to use such reports as they see proper without in any way offending the feelings of the afflicted and their families, or diminishing their chances of attending to their duties as citizens or heads of families, or to exclude them from social intercourse with their friends and neighbors. Physicians in public office should make the diagnosis of tuberculosis in its incipient stage. They should inform the proper authorities as to the sanitary condition of the houses in which their patients live, of their occupations and habits, their general social condition and whether they are in needy circumstances.

Physicians, dentists, nurses, and all persons coming in contact with sick people should help the authorities obtain all information of danger which might arise from any person afflicted with tuberculosis. They should make it their aim to be helpers in the work of preventing the spreading of tuberculosis. Teachers, public officers and all persons, who by their occupation have to deal in any manner with tuberculous people, should consider it a duty to join in the fight against the greatest enemy of the human race.

Clean streets, clean houses on well drained dry ground, public bathing institutions for every time of the year, education to avoid everything which deteriorates the forces of the body, enlightening the public by distributing circulars on tuberculosis, making them acquainted with dangers from infectious diseases and their cause, are important factors which have to be impressed on the public.

In public hospitals and in sanitaria, no tuberculous patients should be treated. Every patient before admittance to a hospital should be examined, to ascertain if he is afflicted with tuberculosis. A tuberculous patient in a hospital or in a sanitarium becomes a dangerous source for communicating the disease to other patients. The inmates of the hospital should be examined every month in order to demonstrate the presence of tuberculosis. Should an examination reveal tuberculous infection, the patient should be removed to a hospital erected for the purpose of taking care of tuberculous patients.

In England and other countries, hospitals for tuberculous patients have been found to be good places for taking care of patients in the incipient stage of tuberculosis, and to be one of the means to prevent the spreading of the disease. Such hospitals are in a condition to enforce the strictest rules for disinfection and the treatment can be administered according to the latest views and experience of scientific observers. Whether the patients in the late stages of tuberculosis are the proper persons for treatment in such hospitals is another question. In some countries tuberculous patients have been sent to institutions in the country. They have been introduced in Germany and are known under the name of "*Heil und Plegestätte für Lungenkranke.*" These institutions are located in districts which are known to have a climate, and conditions, which warrant a successful treatment of tuberculous patients. They are in some instances near the seashore, in the mountains, or in the forests. These sanitaria are sustained by the states, cities, communities, by trades unions, or by charitable associations. Proper treatment, and principally by bringing the tuberculous patients under the most promising conditions, renders the prospect for recovery more favorable, diminishing in this way the number of cases from which danger of infection may arise.

Dispensaries are under the present management dangerous sources from which communication of tuberculosis takes place. They should be strictly under control and their waiting rooms should be examined concerning the presence of the tubercle bacillus in the dust, on the walls, the floor, furniture, et cetera. People suffering from tuberculous affections of the respiratory organs are not without danger to the dispensary patronage.

In order to facilitate for the general practitioner the diagnosis of incipient cases of tuberculosis, a public bacteriological laboratory should be provided, to which sputa could be sent for examination free of charge. This laboratory should be connected with the local Health Board.

"Tuberculosis is a comparatively common disease among cattle; can be communicated to man through milk and meat. It is a danger always present and always to be taken account of, for these articles are universal staples of food. VILLEMIN states that 2,000 bottle-fed babies die every year in Paris from tuberculosis."

VILLIVIER reports the following experience illustrating the danger of infection from milk: "At a school for young girls there occurred within three months, eleven cases of tuberculosis, of which five were fatal; and with many the site of infection seemed to be intestinal. Two other pupils of the same school died of tuberculosis, in whom the family history and previous state of excellent health warranted the statement that they otherwise would not have been infected. Upon investigating the cause of this frightful occurrence it was found that during this period the school had obtained its milk supply from a cow which had shown, on postmortem examination, advanced tuberculosis of the lungs and peritoneum and more particularly of the udder."

In an article on "Pulmonary Tuberculosis" page 541, *The American Journal of the Medical Sciences* for November, 1898, OTIS says regarding the avoidance of this danger from tuberculous animals: "I believe practically to abolish it by strict governmental and state inspection, which has already been instituted in many states, but often very imperfectly. All herds of cows kept for milk should be tested with tuberculin, which rarely, if ever, fails, and those animals reacting to this test should be removed from the herd, and either killed or kept apart for a time for observation. The Minneapolis Board of Health compels the farmers who supply that city with milk to test their herds with tuberculin. As there is less danger from the meat of tuberculous cattle than from the milk, less strict measures will probably suffice. Those that show clinical evidence of tuberculosis should be killed; and those exhibiting suspicious signs of the disease should be tested with tuberculin, and if a reaction is obtained they should either be destroyed or kept apart for a time. If all animals slaughtered for meat are not inspected, or all meat exposed for sale is not (which would be the more perfect way), at least all suspected animals or those from suspected herds should be examined, the internal organs as well as the muscular portion. Milk dealers should require those who supply them with this article to give proof that their cows have been tested with tuberculin and found to be free from tuberculosis. As long, however, as inspection is not absolute or complete, the only safety is in boiling the milk and a temperature of 167° has been found to destroy the bacilli.

"The tubercle bacillus finds a good soil for development in all cases wherein the sanitary conditions of a community are bad. The most healthy people will be found where the surroundings are clean, the air pure, the canalization perfect, the soil well drained, where people are not crowded into small spaces, and where the houses are constructed according to the best sanitary principles. The chance to get honest work, honest and good pay, and to buy with such earned wages pure food and such commodities which are needed for a healthy life are elements of great importance in keeping up a good condition of health of the people, by which their power of resistance against anything that may impair health is strengthened. The amount of labor which an individual is able to perform has its limits and the kind of labor to be performed must be considered. The only way of reducing the mortality from the unwholesome occupations is to make the hours of labor short and the conditions under which they are performed as favorable as possible. There should be rigid state inspection of all places where they are followed. Sufficient air space and ventilation should be required; every means known to dispose of the dust and all appliances should be provided for by which the health of the workingman can be secured."

The people, living in the country where the proper surroundings warrant a healthy life, where pure food is not wanting and where everything is tending to raise the standard of living, will not fall so easily a prey to epidemic of infectious or contagious diseases.

The measures proposed in this report are, according to our opinion, in the proper direction to prevent pulmonary tuberculosis. The compulsory notification is not possible, and, for more than one reason, it is unjust. It deprives many people, who are able to work and attend to their affairs, of their rights as citizens and men; makes them social outcasts and leaves a depressing impression on their minds, tending to frustrate all efforts to become cured. Tuberculosis runs a long course, and in many cases it is of such a mild type that it is hardly justifiable to call one having this form of the disease a patient.

By compulsory notification an unbearable burden would be put upon families of tuberculous patients. The life of these families and their tuberculous members would be similar to the condition of the medieval leper and would make them as conspicuous in society as if they were clad in the gray gown and sounded the clapper.

> " They curse them in eating, they curse them in drinking,
> They curse them in coughing, in sneezing, in winking."

Compulsory notification and compulsory isolation are cruel and inexpedient because they are unnecessary. They deprive the consumptive of the advantage of the modern doctrine which CORNET never tires of advertising. "The consumptive in himself is almost absolutely harmless and only becomes harmful through his habits."

The measures which we apply against pulmonary tuberculosis should be based upon the fact that the sputum is chiefly the source of infection; that where there is no sputum, there is no infection; that the sputum is not infectious except when it dries, and that it can dry only under certain conditions, perfectly easy to be avoided. Therefore, people affected with tuberculosis should be taught to dispose of the expectorations in a manner which warrants safety to themselves and to others. It is very essential and too great a stress cannot be put upon this point, that everything should be avoided which might tend to wound the feelings of victims of tuberculosis as by showing an intention to avoid their company or to exclude them from social intercourse with their friends and neighbors. The painful impression made upon a person by demanding him to dispose of his sputum carefully will be mitigated if the prospect of recovery is open to him.

The prognosis is always good in cases where the diagnosis is made in the incipient stage. The rich patient will not find it difficult to bring himself under the most favorable conditions but the poor patient needs help and care. His resort will be the general hospital, perhaps, not the proper place, for which reason special hospitals for tuberculous patients are desirable.

We most sincerely hope that the medical profession will become more fully aware of the opportunities which the recent developments of knowledge regarding tuberculosis offer for the beneficial work amongst the people who entrust to it their life and health. The family physician is in position to diagnose incipient cases of tuberculosis and should watch members of families who have selected him as a reliable adviser.

We know that our report alludes only in an unsatisfactory manner to some of the dangers which arise from the numerous ways through which tuberculosis spreads, "but we firmly believe that it is possible, by a union of all the resources at hand, state and law, individual and organized exertion, enlightenment of the public regarding the dangers of the dried sputum and their avoidance, and a utilization of all the means at our command, to increase the general average of health so as to reduce the mortality from consumption, that it may become one of the rarer diseases instead of the most common and fatal. The medical profession has labored long and patiently, and with lamentably little success in its attempt to cure the disease or discover a specific for it. Let it now turn its attention to prevention and enlist the public in its endeavor. The outlook is infinitely more hopeful in this direction; and, prevention, whether one is dealing with crime, poverty or disease, is better and more scientific than attempts to cure."—Otis: "Pulmonary Tuberculosis," page 558, *The American Journal of the Medical Sciences*, November, 1899.

A PLEA FOR AN EARLIER DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Statistics prove that sixty per cent. of the human race is affected with tuberculosis. Forty per cent. of autopsies made upon those dying from other diseases reveal signs of tubercular conditions that have existed at one time or another. This high percentage is not the actual death rate, for then the disease would be more fatal than any with which we have to deal, and would be more dreaded than it is today. The death rate is actually from fifteen per cent. to eighteen per cent.

But the object of my paper is to give in short detail, the various symptoms that appear before Koch's bacillus—the "pathognomonic sign" of the disease—is discoverable in the sputum. We can all remember cases of pulmonary phthisis wherein no bacilli were discovered until late in the disease, the diagnosis coming really too late to make the treatment of any benefit to the patient. The fact that tuberculosis is curable, if treated early, makes the earliest diagnosis of the greatest importance. I will not speak of the various diseases of which pulmonary tuberculosis appears as a secondary affection, but will call your attention to a few clinical points which are often overlooked, and which may be considered the pretubercular symptoms of the disease, the incubation period of the tubercle bacillus.

(1) *The early facial expression* of incipient phthisis is often characteristic: the widely opened and searching eyes, whose clear and eager glance bespeaks of being on guard; the quivering nostrils; the peculiar whiteness of the skin, like a porcelain finish to a fine piece of china. The patient looks anemic, and may be so in the earliest stages (Osler), but the lips and mucous membranes are often injected to a higher degree than normal; the wasting, dryness and discoloration of the hair also point to the fact that latent

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*Read before the Detroit Academy of Medicine.

disease is beginning to show itself, and malnutrition, with lack of tissue resistance, is present.

(2) *The inspection of the chest* may reveal the hollow-chested man or woman who, at the age of eighteen or twenty years, shows a marked lack of development of the chest, both anteriorly and posteriorly. The antero-posterior diameter is slight, particularly in the upper two-thirds, and instead of a marked convexity in front, the surface is flattened and hollow, as though the parts underneath had drawn in the chest wall. There is marked depression above and below the clavicle. The shoulders are very sloping, the neck recedes from the Adam's apple to the upper part of the sterum in the median line. Posteriorly, the scapulæ stand out from the back, wing-like, and when the patient is told to throw his shoulders back and straighten up, the new position is kept but for a moment, the former position being resumed, as the easiest; therefore, the lungs lose their elasticity because the physical strength exerted upon the muscles is not sufficient to keep up the function of respiration, so the respiratory movement is correspondingly weakened.

An old scar on the neck may show where some old abscess has been opened years before, indicative of a strumous diathesis that has appeared at an earlier date, for it should be remembered that the lymphatics are especially liable to tubercular infection. The enlargement of lymphatic glands in any part of the body, if not due to venereal disease or syphilis, may be a diagnostic sign of tuberculosis. Those most frequently affected are the glands of the neck; the submaxillary are usually first involved, but those of the posterior cervical triangle are frequently the seat of the enlargement and are usually painful.

A cough without expectoration and with failure of strength and loss of appetite should lead to a careful physical examination of the chest with the use of the newer tests, which will be described later on at length.

In order to make a satisfactory physical examination it is necessary to remove all clothing to the waist, for the examination of the chest through the clothes prevents the obtaining of accurate results. The entire chest should be examined, front and back, apices and bases of lungs and the axillary spaces; all will need careful inspection, percussion and auscultation.

PHYSICAL EXAMINATION OF THE CHEST.

Percussion.—In the earliest stages this may be negative.

Palpation.—An increased vocal fremitus is one of the early symptoms.

Diminished Expansion.—The expansion may be one or two inches, as marked by the tape; diminished expansion is always considered a predisposing cause of lung disease, and is an important diagnostic sign. When this is present there is nearly always an increase of the respirations per minute, especially if physical exertion is not the cause of the increased respiratory movement.

Auscultation.—Auscultation is by far more accurate in the early stage than is percussion, for the trained ear of the diagnostician can recognize considerable tissue change in the apex of a lung before percussion dullness is manifest. In the portions of the lungs where the vesicular breathing is normally heard, the inspiration and expiration change their rhythm, the latter being prolonged. If the sound of expiration is increased, or if it is prolonged, it is indicative of the loss of elasticity of lung tissue, or of some diseased state, usually of tubercular origin. If, in the apices of the lungs, there is a marked clearness and loudness that has a harsh note, it may be counted as one of the earliest symptoms of weakened lung tissue. The area of lung tissue in the apices is least active during respiration, and the air becomes most stagnant there, because of weakened muscles and poorer circulation, hence it is most often the primary seat of tubercular invasion.

Should bronchial breathing be heard over tissues where the vesicular murmur is present normally, as in the apices of the lungs and in the subclavicular space, and below the angles of the scapulæ, one need scarcely go further for more proof of tubercular changes. Should friction sounds be heard in the apex of the chest, tubercular infection of the pleura will often be the cause of their presence. Such friction sounds must be carefully differentiated from fine, moist rales, vocal fremitus and the bruit of aneurism.

Bronchophony.—This is normally heard when auscultation is made over the bronchi or trachea; when heard in other sites of the lungs it is abnormal, and is due to an increased conducting power of the pulmonary parenchyma, due to consolidation; it is looked upon as a positive symptom of pulmonary tuberculosis.

Rales.—Fine, moist rales often indicate softening of tissues, and if tubercle bacilli are found in the expectorated mucus, the disease has then advanced to the stage of cavity formation and ulceration. Very delicate crepitations are associated with tubercle formation in the acini.

Pulmonary hemorrhage is often the first intimation that the patient is not in his usual health. Loss of flesh and weight are indicative of a failing constitution, and should be looked upon as a grave accompaniment.

The Cough.—There is nothing distinctive in the cough of the early stages of pulmonary phthisis, unless it be the chronic and persistent hacking, especially noted in the morning upon rising, which may be followed by a large discharge of mucus, and then the patient is free from another coughing spell for a number of hours. Such a condition is very suggestive of a tubercular infection, and the sputum should be carefully examined for tubercle bacilli. A chronic and obstinate cough with little or no expectoration, renders patients unable to take a deep inspiration without producing a short cough. Cases suffering from bronchial catarrh can breathe deeply without producing such a cough.

The Temperature.—The earliest symptoms are, as a rule, not ushered in by fever, but a patient with general weakness of respiratory action should be looked upon with suspicion, and the temperature taken four times a day and carefully noted. It will be found that the temperature is usually normal until noon, but toward evening there is a rise of one or two degrees. As the disease progresses the more active is the febrile movement, the more serious becomes the diseased process.

The Pulse.—A small, rapid pulse, especially in young subjects, frequently precedes the appearance of the cough and fever. A rapid pulse rate is almost always associated with pulmonary tuberculosis, but is more frequently observed in the latter stages of the disease. In the early period, when the disease is in its incipiency, the rise of the pulse beat is most noted in the latter part of the day; after the patient has been about in the afternoon, the pulse will often be as high as 96 or more (VON RUCK). DOCTOR VON RUCK has called attention to the sharp accentuation of the secondary sound of heart over the pulmonary artery, which is absent in the morning after the rest of the night, but which becomes more marked by the close of the day after exercise and routine duties. The increased tension of the pulmonary system and the sharp accentuation of the pulmonary sound necessarily points to obstruction in the lungs, provided there is no disease on the left side of the heart. The heart is suffering under a strain, depending upon the amount of lung tissue involved, but the accentuation of the second pulmonary sound or the rapid pulse rate may not be noticed until late in the afternoon. As a guide to the general management, especially as to the permissible exercise, the observation of the circulation is of even greater importance than of the temperature.

To the physician who makes insurance examinations, the question of heredity is a vital one, and must be considered seriously in the accepting or rejecting of men who seem to be in good health at the time of their examination. The various conditions which have been briefly stated as early symptoms of pulmonary tuberculosis, must necessarily produce malnutrition and depression of the vital forces, rendering the normal resisting powers weak, so that if exposure to tuberculosis occurs at this time it is almost certain to produce general inoculation. This condition of lowered vitality is largely influenced by hereditary predisposition, for if the disease has been introduced into a family, their descendants will often show in succeeding generations recurrence of the affection.

The veterinary surgeons have, for a number of years, employed the original crude tuberculin of KOCH for testing cattle supposed to be suffering with tuberculosis. This test is rarely erroneous. Of 67,077 cattle examined in Leipsic, Germany, during the years from 1888 to 1891, 13,688 were found by this test to be tubercular, a percentage of twenty and four-tenths. It is useless to cumber this paper with such statistics, as they are accessible to all. Suffice it to say that we have abundant proof that milk and flesh from tubercular animals spread the disease almost without limit. A very grave question arises as to the final disposal of consumptive cattle. Most always they are killed, and often the flesh is sold in the cheaper markets, and may become a source of danger to consumers.

The use of the crude tuberculin in testing human tubercular cases has, at times, been looked upon as dangerous, but those who have had the greatest experience in its diagnostic use, maintain that the test, when properly made, is perfectly safe. This cannot, however, be said of the new tuberculin prepared by PROFESSOR KOCH in 1897, and known as tuberculin B. It is made from the living, virulent tubercle bacilli, which, being removed from the culture fluid are dried, powdered, and with the addition of distilled water, their separation is sought to be accomplished by the centrifuge. This is not effectually accomplished, and virulent infection has been produced by this preparation. The product is not a solution of the germ, but rather an emulsion of the fragments and fats, which contains traces of proteids in solution, twenty per cent. glycerine being added for preservation. (It has been withdrawn from the market.)

For the past year and a half, through the courtesy of DOCTOR VON RUCK, of Asheville, North Carolina, I have made frequent diagnostic experiments, and have treated a number of cases of tuberculosis in all stages with a preparation from his laboratory known as the *watery extract of tubercle bacilli.* This extract is capable of producing local reactions when administered hypodermically in very small doses, and is a delicate and reliable reagent for diagnostic purposes. Its preparation is as follows: "The watery extract is also made from the living tubercle bacilli, but it is free from the objections of tuberculin B, and differs in this way, that after washing and drying the germs their fat is extracted with sulphuric ether, and after drying, powdering and macerating the bacilli in distilled water at a temperature of 112° Fahrenheit, their proteid substance enters into solution which readily passes through a porcelain filter, a procedure which assures freedom of the preparation from the presence of tubercle bacilli."

The filtered product is standardized to one per cent. of organic substance, and is preserved in glycerine. The extraction of the germs with ether does not injure or destroy the proteids, and therein lies the only difference in the manufacture, beyond the substitution of filtering through porcelain, for the centrifugal process. Freezing temperature does not alter the efficacy of the watery extract, though boiling destroys it.

For diagnosis the dose of watery extract taken is larger than the beginning dose for treatment; nevertheless it is but one-tenth of one milligram. Early-stage cases respond to this dose quite uniformly, while in the more advanced stages of chronic phthisis the reaction to this dose is usually very slight, and in such, two-tenths to five-tenths of a milligram should be used. This specific diagnosis need, however, be resorted to only in obscure and incipient cases, and before a positive diagnosis can be made by examination of the sputum.

The technique of the test, as suggested by DOCTOR VON RUCK*, who has experimented clinically for over three years with the watery extract, is as follows: "Of solution number ten, one to four minims are added to five or six minims of a half of one per cent. solution of carbolic acid in distilled water. The injection is made in the loose skin between the shoulder blades. For twenty-four hours before and after the injection, the temperature should be taken by the mouth every one or two hours while the patient is awake." If tuberculosis is present, there is a distinct reaction; the fever rises from one to three degrees above the usual highest daily temperature. The test when thus applied is safe and positive. When no tuberculosis exists, the introduction of the watery extract in much larger doses produces no fever reaction whatever.

For clinical use DOCTOR VON RUCK prepares three solutions of the watery extract, all of which have a very positive reaction, as I have many times demonstrated. Solution number one contains one one-hundredth of one per cent. of solid extract free from water; number ten contains one tenth of one per cent., and number one hundred contains one per cent. of the solid extract. When the serum is to be used in the treatment of a tubercular case, we begin with solution number one, administering first one-tenth cubic centimetre, equal to one one-hundredth of one milligram, increasing every day or two until five-tenths of one cubic centimeter are taken, the latter dose equaling one-twentieth of a milligram. I have thought best to repeat this dose for a week or two, that the patient may become accustomed to the effects of the medication; gradually the dose is increased until one cubic centimetre is reached. This I continue for a month, and then take solution number ten, increasing it by one-twentieth until one-half of one cubic centimetre is reached. There is little or no pain connected with the medication. Should a distinct reaction occur, and if it is prolonged and attended with a marked rise of temperature, it is best to discontinue the treatment for twenty-four or forty-eight hours, to allow time for toleration to become established, and then to resume the medication with one-half the former dose. The watery extract must be given carefully, and the dose only slowly increased. After the first month number ten solution can be used, and it should take at least two months to reach the daily dose of five-tenths cubic centimeter of this strength.

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* *Journal of Tuberculosis*, April, 1899.

The favorable changes in the involved tubercular area when the watery extract is slowly given are very remarkable; the earlier the stage the better is the result. Clinical observers are finding that it is a reliable preparation. The appetite improves, the fever is reduced, the patient begins to put on flesh, cavities in the lungs become dry, expectoration is lessened, night sweats are checked, and the cough is relieved.

I have had about twenty cases under treatment in the past fourteen months, and in all I can say, irrespective of their conditions and advanced states, I have noted marked improvement. Cases that I thought hopeless have improved, and the improvement is not only noted by the physician, but by the patients who feel the good effect and appreciate the new treatment.

Therapeutic administration of the watery extract is based on the principle of immunity, and has for its ultimate object the immunization of the patient against tuberculosis, under the gradual occurrence of which living tubercular tissue disappears, and further formation of tubercles through autoinoculation or infection from other sources is prevented.

I have not time to enter into details of other treatment, such as hygienic, dietetic, climatic, symptomatic, inhalant and surgical. This must be left for others. The object of my paper has been to call your attention to the early diagnosis by physical examination, and by the serum test in reaching a positive diagnosis. After that the best general treatment should be used, in addition to the watery extract of the tubercle bacilli. I heartily believe in its curative properties, and think that the dawn of a specific treatment for tuberculosis is upon us. Having been found safe and efficient, we should be ready to accept it at least for a painstaking trial in properly selected early-stage cases, and in all, supplement its effect by the best general care and management that we can give. Such a course on my part has given me great satisfaction, and, not as yet wishing to speak of cures, it has certainly prolonged the lives of many of my patients.

COMPLICATED WOUNDS OF THE INTESTINES.*

BY HAL C. WYMAN, M. S., M. D., DETROIT, MICHIGAN.
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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

A SIMPLE gunshot or stab wound of the intestine may be complicated by wounds of other important viscera within the abdomen. For example, a ball may traverse sundry loops of small intestine and then perforate a kidney. It may also, after wounding the intestine, or in addition to wounding it, pass through spleen, liver, bladder, mesentery and thoracic duct, inflicting injuries unavoidably fatal sometimes.

It is quite impossible to know, before the abdomen is opened in a case of known wound of the bowel, how extensively other organs are involved. And every surgeon will be quite likely sooner or later to encounter some cases on the operating table that would have done just as well had he not undertaken any operative measures with the expectation of improving the patient's chances of recovery.

I once had a case of gunshot wound of abdomen on which I operated and sutured eight wounds of the large and small intestine and then, when quite ready to close the abdomen, found that the ball had torn away a large part of the mesentery from its attachment to the spine and had lacerated the receptaculum chyli. These injuries added a most serious complication to simple intestinal wounds. They were sutured with due care and precision, but so profoundly damaging were they that the patient never ralied. Could I have known directly I examined this case that such complicated injuries existed, I do not think I would have undertaken to repair them.

In another case the ball had passed through the transverse colon. That wound was sutured directly it was discovered. Beneath it were two wounds of the stomach which were likewise promptly sutured. Then, removing that, was revealed a large wound of the portal vein which demanded immediate ligation. That done, the abdomen was closed with the omentum in part sutured to the peritoneum in expectation of development of collateral circulation for the portal vein. But the patient passed from bad to worse, and died in consequence of the complications introduced into his case by the injury to the portal vein.

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*Read at the Adrian meeting of the NORTHERN TRISTATE (Michigan, Ohio and Indiana) MEDICAL ASSOCIATION.

A man came under my care with three separate shot wounds. One ball had gone through his left shoulder, another had perforated the right chest about two inches below the clavicle and emerged through the scapula near its upper angle, another had penetrated the abdomen two inches below the right nipple. He was coughing and expectorating bloody, frothy mucus, was very pale, had the weak rapid pulse of internal hemorrhage, and a copious bloody evacuation from the bowels. His abdomen was opened to control the intra-abdominal hemorrhage. There was a wound of the transverse colon which was sutured. Then the blood was wiped out, revealing a wound of the right lobe of the liver from which the hemorrhage proceeded. Hemorrhage was controlled by packing the hepatic wound with gauze, one end of which was brought out of the abdominal wound after closure to facilitate its removal. This case made an uninterrupted recovery. The gauze above mentioned was withdrawn on the third day after the operation. Its removal was greatly facilitated by soaking it well with peroxide of hydrogen.

One more case occurs to me in illustration of complicated wounds of the intestine with which I have had to deal since it became a rule in surgery to operate in all cases of wounds of the abdomen. This man received the ball from a thirty-eight calibre revolver at close range. It penetrated at a point one inch above and two inches to the left of the umbilicus. When I saw him his abdomen was distended and tympanitic, twenty-four hours after the injury was inflicted. His pulse indicated internal hemorrhage. I expected to find a wound of the spleen as well as of the intestine. Two wounds in the small intestine were discovered and sutured directly the abdomen was opened. The intestines were floating on a great quantity of bloody fluid which was quickly wiped out. The spleen had been traversed below its notch and fresh blood poured freely from the wound. It was dragged forward and the hemorrhage controlled by suturing the wound with catgut. I found no difficulty, by passing the needle through the spleenic tissue, in getting firm enough hold with catgut to control the bleeding perfectly. This man, however, did not rally. He died in consequence of the hemorrhage which occurred before the operation was undertaken.

From the dismal results exemplified in these cases, one would be inclined to say of complicated wounds of intestines, as they say in Berlin of cancer of the stomach, "the later the diagnosis the better for the patient;" but I do not think death was materially hastened by the operation in any of the cases I have quoted from my experience. I bring them before you to show that it is quite impossible, sometimes, to discover the complications before the opening of the abdomen.

If we include hemorrhage as one of the complications of intestinal wounds, we are surely justified in operating to control it. Successful results in many cases of operation for the control of intraabdominal hemorrhage are familiar to all surgeons. The apalling hemorrhage which threatens the patient with extrauterine pregnancy is promptly controlled by surgery, and no one who practices operative surgery will hesitate to open the abdomen and search for the bleeding point, no matter where it may be or what its causes.

An impregnated uterus may be the recipient of shot or stab, along with a wounded intestine, and should receive particular treatment after the rents in bowel have been closed. Probably hemorrhage from the wounded uterus will be the only item for particular care. Careful approximation of the wounded uterine tissue with fine gut or silk stitches will avert danger from loss of blood, and prevent loss of amniotic fluid and threatened abortion or miscarriage. If the embryo or fetus is killed by the complicating shot or stab, spontaneous evacuation of the uterus may be hopefully awaited, unless these injuries are so extensive that suturing cannot be trusted to hold the wounds tight and firm under the strain and pressure of uterine contractions. If the uterus is too badly wounded to justify the risk of waiting for normal delivery of its dead or living contents, that organ should be opened by incision sufficiently to enable the operator to remove them neatly and cleanly. Then all wounds should be so tightly sutured that there is close approximation of all divided tissues. I do not think the womb should be removed because of shot or stab, whether pregnant or not.

Bladder, ureter and kidney wounds complicating intestinal wounds are more troublesome and dangerous, because of the difficulty in finding them than of the work of closing them. At the time the injury is received but little urine may be in the bladder, and consequently so little fluid be found in the pelvis after closure of intestinal lesions that attention will not be drawn to a wound of the bladder until the abdomen has been closed, and the symptoms of persistent shock or peritonitis show themselves. Then the catheter will reveal an empty bladder or a few drops of bloody urine, and confirm a wound of the bladder.

The bladder ought always to be examined carefully after the internal wounds have been closed. A thoughtful search of the retroperitoneum should always be made, that no complicating wound of kidney or ureter escape notice.

If a ureter is divided so that its contents can escape, the wound should be closed by lateral anastomosis, secured by ample openings and fine suturing. If that is impracticable, then the peritoneum adjacent to the injured ureter must be tightly closed, and the loin opened by incision, so that urine escaping from the wound in the ureter can discharge externally.

Relatively the same plan should be followed when a wounded kidney complicates an intestinal wound. The retroperitoneal wound must be closed, so that urine escaping from the kidney cannot permeate the peritoneal cavity. And the loin must be opened to expose the injured kidney, so that urine will readily escape externally and not infiltrate the retroperitoneal space. If the wound involves the emulgent arteries or veins, the kidney had better be removed.

A man was caught between two cars while trying to make a coupling, and was severely pinched, but completed his work and then collapsed with great pain in the abdomen. I saw him in Emergency Hospital ten hours after the accident. He was in great pain and had vomited several times; his abdomen was distended and would not tolerate pressure, and his pulse and respiration indicated serious internal injury of the abdomen. On opening his abdomen the small intestine was found ruptured at one point, and that I carefully sutured. No other injuries were discovered and the abdomen was closed. Thirty hours after the operation his bowels moved freely, but he did not improve materially. For the next thirty-six hours he was very restless with small pulse, frequent stools, evacuations of the bladder, and hurried respiration. His complexion had gradually become a peculiar waxy brownish yellow, and in his left loin was a diffuse boggy swelling. He was again anesthetized and the loin opened. A quantity of pus and bloody urine escaped. The kidney was found torn half in two, and my finger readily entered its pelvis. A drain was introduced to conduct away the urine and pus.

Healing occurred at the end of a month, and the urine is presumed to have resumed its natural channel to the bladder, as it discharged quite pure from the drainage tube for two weeks, and through a fistula for two weeks after the tube was withdrawn. Now, more than ordinary care was taken in this case to find other injuries when the abdomen was opened to close the ruptured intestine, yet a very serious wound of the kidney escaped notice. Had the case been one of shot or stab wound, no doubt the renal lesion would have been discovered promptly.

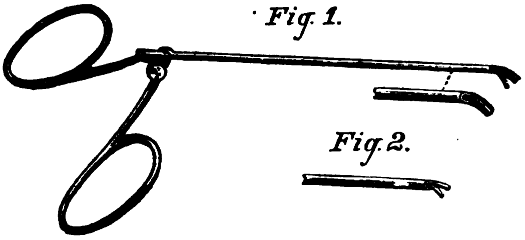
Summarizing, I would say that—(1) A wound of the portal vein should be treated by ligation and suture of a part of the omentum to the peritoneum, so that collateral circulation can take place. To do this the free border of the omentum is dragged into the wound made to open the abdomen, and by intercepted sutures fastened to the margins of the peritoneum. (2) Hemorrhage from liver wounds, if not involving large arteries, may be controlled by gauze packing. Arteries may be controlled by cautery, clamp, forceps or ligature. (3) An effort must be made to preserve the contents of a wounded uterus. A temporary urinary fistula must be provided when ureter or kidney are wounded.

A FORCEPS AND GAUZE CARRIER.

By EMIL AMBERG, M. D., Detroit, Michigan.

[Published in The Physician and Surgeon exclusively]

The instruments consist of a rod within a tube, the ends of which serve as jaws of a forceps. The small calibre of the tubes makes it possible to use the instruments in a small space, as in the ear and the nose. The instruments are small, but the jaws possess remarkably great strength.



Figures 1 and 2 show the two instruments, one of which, with plain and short jaws, is designed to serve as a gauze carrier especially for ear work, the other, with serrated jaws, for general purposes.

32 West Adams Avenue.

TRANSACTIONS.

DETROIT ACADEMY OF MEDICINE.

STATED MEETING, FEBRUARY 13, 1900.

The President, GEORGE DUFFIELD, M. D., in the Chair.

Reported by H. D. JENKS, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor George Dock, of Ann Arbor, read a paper entitled "Pathology and Treatment of Typhoid Fever." (See page 113.)

Doctor Inglis: Doctor Dock's paper is a lucid and thoroughly enjoyable one, and I am especially impressed with the judicious and moderate views which the doctor has propounded, both in regard to the pathology and the treatment of typhoid fever. The doctor does not take an extreme view of the causation of the disease. He acknowledges the part that mixed infection may play in the development of symptoms. It is therefore all the more strange that he should make so little of that phase of the treatment which is directed toward rendering the intestines as nearly aseptic as possible. While I am in full accord with the doctor in many points, it is at this point that I must strongly diverge from his views. Whatever may be the facts in regard to the development of the bacillus of Eberth in the various glands, both those directly connected with the intestines, and later elsewhere, many of us as clinicians have no doubt that the same structures which originally took up the Eberth bacillus from the intestinal canal take up a continuing supply of systemic poisons from the intestinal canal as the disease progresses. The original germs of the disease are taken up through a sound mucous membrane; that the intoxication of the body should be facilitated by the ulceration of the mucous membrane is but natural. Whether the steady intoxication during the course of the disease be through the Eberth bacillus or colon bacillus or both, or from intermediate forms, is immaterial. It is, however, of vast importance that the intestinal contents should be as nearly aseptic as can be attained. While Doctor Woodbridge has undoubtedly put forward extreme claims, and while others may not be able to duplicate his results, I believe that nevertheless he was working on right lines, and I lay great stress on intestinal asepsis, although I by no means expect to see the disease aborted as he claims to do. The primary intoxication with the Eberth bacillus (assuming that to be the effective organism) in most cases will run its course, but if the use of the intestinal antiseptics and careful elimination by way of the bowels can prevent mixed infection and secondary intoxication, it will go far toward saving the patient's life and strength, and I believe that that is precisely what this plan of treatment accomplishes. It is not a question of any single bacillus, but one of reducing to a minimum possible sources of autointoxication. Personally I believe that the most important step toward lessening secondary intoxication is to rigidly cut down the material put into the patient in an effort to feed him. Into a patient whose digestive tract from end to end is upset, irritated, or inflamed, the zealous physician puts food stuffs which cannot be digested. The patient whose fever has been moderate, whose appetite has been *nil*, and who has followed nature's indication by eating little or nothing, calls the doctor. Then comes the chart with its stairway of climbing temperature, and climbing temperature due, I believe, in no small degree to the presence in the intestines of putrefied, undigested food, stuff which damages in two ways: first, by supplying poisonous material for absorption; and second, by irritating the inflamed intestine and preventing rest. The blind routine use of milk is the principal dietetic sin against which I would protest. Milk is a liquid in the tumbler, but a solid in the bowels. It readily putrefies, its cheesy masses rub along like a foreign substance over the ulcerated mucous membrane. Notwithstanding its administration in large quantities the patient comes out at the end of the disease thoroughly emaciated, and it is a question whether all the milk he has taken has hindered the bodily waste at all. On the other hand it is something worthy of careful thought whether the patient would not have had fever of more moderate type and shorter continuance if he had had no milk at all. While I recognize the limitations of my own experience, I am personally fully convinced that abundant pure water, a little albumen, and no milk at all, will give far better results than the present routine stuffing with milk. Let anyone who doubts this watch a typhoid patient and see how quickly the temperature responds to an indigestion, notwithstanding the steady use of the cold bath or any other method used for controlling the fever. As for the cold bath, I judge from the doctor's paper that he is not an advocate of its indiscriminate use, and for that I would again commend him. There is no question of the invaluable service of the cold bath in selected cases, but its routine use is unsatisfactory in private practice. It is, in many cases, entirely unnecessary, and in some, positively harmful. There are well persons who are greatly depressed by cold bathing, and there are typhoid patients who are endangered by it. DOCTOR DOCK, in advocating the use of the bath, calls attention to the increased diuresis secured by it and to the elimination of the Eberth bacillus by way of the kidney. He evidently regards such elimination as desirable. If it be desirable to eliminate the bacilli by the kidney it is equally desirable to eliminate them by way of the bowels. Notwithstanding the array of statistics furnished by the advocates of the Brand method it seems to me that the general practitioner will achieve his best results by using the bath, not in the routine way, but in selected cases, by giving the most careful attention to the diet so that he is certain that all food ingested is promptly digested, that he refrain rigidly from giving more food than can be digested, and that from the beginning to the end of the disease he endeavor to secure by intestinal antiseptics and by reasonably free evacuations the least possible intoxication from the bowel contents.

DOCTOR JAMES SAMSON, Windsor: I am here tonight by the invitation of the society. The harm that will be accomplished by this disease within the next century will be of such immensity that we can scarcely dream of it at the present time, and if there is a value placed upon human life the subject is of exceeding interest. I agree with very much the doctor has said in his paper and disagree with some of it. I have never plunged a patient into the cold tank and never will unless the opportunities for doing so are most convenient and the circumstances most urgent. I am a profound believer in the wise use of the cold sponge bath. I do not believe medicines are of much use in the treatment of typhoid fever. I have not a particle of faith in the scheme advocated by a gentleman in Ohio aided and abetted by one of our prominent drug companies. If I were to be taken sick with typhoid fever I would carefully select my surroundings, carefully select my nurse, and most carefully select my physician. I would try to secure for myself one of those physicians who has no strong penchant for destroying his patients by the enthusiasm of his treatment. I should give him particular instructions not to give me a single dose of medicine, and I would quiet myself with the anticipation of making my escape ninety odd times out of one hundred. I would lay down a law that he must not feed me very much during the attack of typhoid fever. I believe I am the first man who has said that an examination of the reports of the hospitals of this continent today would show a dietary in typhoid fever almost conforming to a hotel bill of fare. If it is a disease of the alimentary canal; if this organ has lost its functions to a great extent, what is the use of giving a patient such food as will permit of a large amount of residue to be passed through the canal? I have for a long time laid down an absolute rule that my patients must adhere to a strict routine. They must lie absolutely still in order that the whole energy may be conserved; they must take the medicines, if any, that are prescribed; and if in the progress of the case I find that the patient can take milk he, must take milk, yet not to exceed a quart in twenty-four hours. This may be wrong but it is my experience. Keeping the temperature down below 101° is not wise. Necessarily, these patients will lose quite a little flesh in twenty-six or twenty-eight days. I always give small doses of calomel for a while in the beginning of the attack, and about the sixth or eighth day expect to see the character of the stools changed, and look for them to continue so. I never give a patient a dose of cathartic medicine after he is taken down with the fever unless I am impressed with the necessity of emptying the bowel when I first see him. I believe, as the doctor says, that an enema is the better plan. If I were to congratulate the Academy on one thing in reference to the doctor's paper tonight it would be that DOCTOR DOCK does not encourage giving a typhoid fever patient antipyretics. I believe it is criminal to put a single dose of acetanilid into a typhoid patient's stomach. That there is a stage in typhoid fever wherein strychnia is valuable and strongly indicated I am firmly convinced. There is a time for whiskey, there is a time for cold sponging, there is a time for food, and as little food as you can possibly give to carry your patient through.

DOCTOR MANN: The gentleman who has given us this able and eloquent address this evening has emphasized anew the necessity of recognizing the pathological phases of typhoid fever as an index to its treatment. It has now been substantiated that Eberth's bacillus does not normally occupy the lumen of the intestine like the cholera vibrio or the bacillus coli communis. Eberth's bacillus attaches itself in the interstices of the intestinal wall. It is, therefore, unlikely that it can be removed by free purgation. The doctor occupies a chair in the University of Michigan once filled by a distinguished predecessor who advocated what might be called the bran mash treatment of typhoid fever. He gave, I believe, a large dose of flaxseed tea and this was followed by a quantity of rochelle salts, and in this way it is claimed he aborted typhoid fever on the seventh or eighth day. Undoubtedly there are cases of typhoid fever that do seem to be aborted about this time, but is this due to free purgation? I do not think so. I believe it is due to the operation of some defensive mechanism, by phagocytosis, by which certain cells within the body destroy the pathological microorganism. If there is an abortion of typhoid fever, I believe it is accomplished by this method at this time. We now come to the important question of intestinal antisepsis, and when we remember that Eberth's bacillus is not in the intestine but in the wall of the intestine, it becomes a question whether we shall saturate the intestine with all sorts of powerful antiseptics with a view of reaching the bacillus. If phagocytosis is the effective instrument in aborting this disease, what effect is this powerful antisepsis to have on phagocytosis? There is a period in the progress of a typhoid case when absorption of grave poisons takes place. It may be disputed whether these toxalbumins which are at this time absorbed are generated by the specific infection or whether they are generated by the mixed infection which at this time must be prominent. But the typhoid intoxication has unique symptoms. We know of no other intestinal poisoning which produces muscular tremors, subsultus tendinum, carphologia and muttering delerium. When this condition of toxalbumin poisoning occurs it becomes an urgent question whether we shall use intestinal antiseptics. Most of the speakers agree that the treatment of typhoid fever should be conducted along simple lines. There is no disease which can be so well treated by the expectant plan as typhoid fever. By expectant I do not mean waiting for what may happen, but watching for each complication and treating it as it arises. While admitting the high nutritive value of alcohol, I should not submit my patients to the joyful method of treatment recommended by Doctor Samson. I believe that the treatment of typhoid fever practically resolves itself into very simple lines, namely, to produce adequate nutrition and at the same time secure physiological rest of the intestine.

Doctor Bonning: I agree with very much that the doctor says, especially in the line of treatment. I firmly believe with Doctor Mann that no patient should die from typhoid fever, and that any physician who loses more than two per cent. of his cases is not doing his duty to his patients. I might say that in children the treatment may be slightly modified. It is not necessary to give a prolonged bath as he advocates it. I find that children very frequently get along when baths of shorter duration are employed, the results being most satisfactory when the temperature of the water is about 78°. I think that whenever the cold bath treatment can be used it should be, and any physician who loses a case of typhoid fever without using it is just as much to blame as if he had lost a case of diphtheria without having had recourse to antitoxin. However, I admit that there are cases in private practice wherein you cannot carry out the Brand or cold bath treatment. Still your patient will never feel as well. In cases wherein it has been absolutely impossible to use the cold bath treatment I have been in the habit of prescribing iodine and carbolic acid in combination, and believe that if this method is judiciously carried out the patient will recover. The more you employ the cold bath treatment in typhoid fever the more you will like it and the better your results will be.

Doctor Chittick: I think we have a large source of contagion in milk and that milk becomes infected from ice in the corner grocery sometimes. There the ice is handled and the milk is handled by the same unwashed hands. Now with regard to the treatment of typhoid fever. I am a firm advocate of the antiseptic treatment and have practiced it for the past six years and have no occasion to find fault with it. My first experience was with aristol. I do not use the Woodbridge treatment. I think it is an imposition on the profession, on patients, and on hospitals. I am in the habit now of giving guaiacol either in milk or capsule form. It is easily borne and the results are to me very satisfactory. I believe in individualizing patients suffering from typhoid fever, watching each patient carefully and prescribing according to the symptoms. In fact some cases need very little medicines. The late Doctor Young, of the Marine Hospital Service, gave, in a paper read by him, a history of twenty cases which he treated successfully without medicines, simply nourishing the patients. Another physician gave a report of one hundred and seventy cases with ten deaths. He gave no medicines whatever. He simply allowed nature to cure the patient. Now with such records, it does seem as if sometimes we overdose our patients. I give no antipyretic unless the temperature goes above 103.° It is not the temperature we should treat, but the cause, and we can only do this by rendering the intestinal canal antiseptic. I am satisfied in my own mind that guaiacol will do that. One thing about guaiacol that I have just learned from Doctor Bleazby, at Harper Hospital, is that when the patient is put on that drug the Widal reaction is negative.

Doctor Charles Douglas: I notice that the different speakers emphasize some particular feature and are a little inclined to make it apply to all. Now there are general principles which are applicable to all patients. It does not make very much difference whether you are treating a patient with an ordinary attack of diarrhea, an attack of pneumonia, or an attack of typhoid fever. You manage that case according to the patient and the particular treatment which is applicable to his size, his previous constitution, and the complications and the severity of the attack. Consequently, I believe there cannot be any fixed rules. I think that we all return, in certain conditions of our body during sickness, to infantile condition very largely. I mean by that that in proportion as we are ill we lose our power to digest and appropriate food. The patient with a temperature of 105° has less of that power than the patient with a temperature of 100°. The sicker a patient is, as a general rule, the less digestive power he has, and as we must depend upon the amount of nutrition which enters the patient during a long siege of sickness a proper adjustment of the amount of nutrition suitable to that patient should be studied out in the individual case. Now, in passing, at this point I would like to draw the attention of the members to the very marked appearances of the tongue which present themselves in typhoid fever, indicating a depraved digestive power—the redness of the tongue, the irritability of it, and the general similarity of its aspect to the general condition of the alimentary canal as evidenced by the way the patient manages the food which he receives. I think that should be taken carefully into consideration, and as the patient presents a smooth, pale, or pale-pink tongue and moist condition, so can you enlarge the diet; but with a patient who has a red angry tongue and foul stools you have to adjust the amount of food according to the ability of the patient to digest it. Doctor Dock made one remark in his paper which does not agree with what my experience has been with regard to the constipation being the cause of an elevation of the fever or a continued elevation of the fever. For many years here in Detroit I have been compelled to recognize the fact that my patients with loose bowels were my dangerous ones. My patients with constipated bowels ran along more smoothly, with lower temperature, and made quicker recoveries, and I have been in the habit of treating my patients so as to have a constipated condition of the bowels, not necessarily what is recognized in ordinary health as a constipated condition, but a condition wherein the bowels do not move oftener than every three or four days and then discharge a soft stool. I contend that if we first adjust the food to the patient's digestive power, and then give them the proper amount of food, they will not require to have a stool more than once in two, three or four days and then it will be a soft yellow stool. I cannot agree with Doctor Dock's idea on the subject of whiskey. If a man with little color and very little blood comes under my care I expect that man will require whiskey before he recovers. A man with plenty of flesh and a ruddy countenance I should expect to go through his attack of sickness without whiskey. The first patient I expect will need whiskey and I give it to him. Doctor Samson also spoke with regard to confining his patient to one quart of milk every twenty-four hours. I have acquired the habit of limiting my patients to a pint of milk for every fifty pounds of weight. Mark you, I do not say that I give them that much. That is the limit. At the beginning I empty the alimentary canal and see that there is no material therein that is liable to create a mixed infection as referred to by Doctor Inglis. I believe there are many patients that would never recover on an exclusively milk diet. I continually have to discontinue the milk diet, or reduce it according to digestive power, when treating certain patients, especially children. What is a typhoid stool? It is just the kind of stool discharged by children, as regards foulness. It is due to the foul contents of the intestinal canal. I think it is just as necessary in treating a patient to know whether his stool smells foul as it is to know about his temperature. I would not do without the cold baths. I believe they are an absolute necessity when a patient does not progress satisfactorily without them. I am not much alarmed by a temperature that does not exceed 104° in a patient having typhoid fever, but if the scale indicates a rise above this point I employ the cold bath. I have tried the cold sponge but have not gotten as good results as with the cold bath. A good deal has been said here tonight about eliminating the bacillus and the poisons generated in the intestines, and accomplishing this through the kidneys and the bowels. I would like to believe in that procedure, but I have come to think that typhoid fever runs about so long and under careful treatment these bacilli and poisons get out through both channels. Our object is to carry that patient along until that poison is entirely extinguished.

Doctor George Duffield: We have had all kinds of treatment suggested, and still there are so many exceptions to the ordinary rules in cases of typhoid fever that, of course, we would have to modify our treatment according to each individual case. I think that in cases that begin with constipation, some treatment has to be given whereby stools are allowed to pass four or six times every twenty-four hours. The practice of giving a drug to produce a movement of the bowels is wrong. Bile is a normal antiseptic, and a normal cathartic as well, and when we induce the flow of bile in the intestines the stools do not smell sour, in which event we get along without the use of a cathartic. I formerly used cold baths, but I have not employed them now for about six years. HARE, in his latest work on "Typhoid Fever," makes this statement: "It appears, therefore, that the proportion of relapses and the number of deaths are both actually increased by the use of cold water." In cases wherein the morning temperature is as high as 104° or 104½° in the beginning of the disease, I prefer the antiseptic treatment. In cases having such high temperatures the prognosis of the disease is very doubtful. I use guaiacol externally, beginning with five minims and applying it over the ileo-cecal region, washing the parts first with soap and warm water and then with alcohol. After applying I cover the parts with some impermeable dressing and note the reaction, and in the course of an hour the temperature will fall two or three degrees and remain in that condition for three or four hours, often persisting for six or eight hours. It has a beneficial effect, and patients that I have treated with cold baths, plunge and sponge baths, much prefer the guaiacol. As a rule it may be carried on for several days, and under these conditions the result is admirable. When the temperature falls to 100° it is discontinued. I believe in giving guaiacol internally in from three to six or ten minims. Patients treated in this way get well, and get well rapidly. The discharges from the bowels are strong in odor of guaiacol, which is a satisfactory intestinal antiseptic in all cases. I believe in the careful use of alcohol in the adynamic cases, and believe very strongly in the use of strychnine.

DOCTOR MCCLINTOCK: My experience has been limited. There is one point that DOCTOR DOCK mentioned which seems to me to demand more attention than it has received. It is a misnomer to call typhoid "enteric fever." A number of observations have been reported of late on the elimination of the germs in urine. In some cases the urine has been noticed to be cloudy, and the microscope and culture tube showed that this cloudiness was due solely to the myriads of typhoid germs. These germs, in so far as we can reason upon the subject, do not come from the intestine. They come from other organs.

DOCTOR DOCK: In regard to the various statements that have been made I might be satisfied with believing that all the speakers who have opposed me have been rebutted by the remarks of those who have followed them. DOCTOR INGLIS' views did not come before me for the first time this evening. He certainly has had a different experience in connection with the eliminative treatment than others have had, and it seems to me it is difficult to demonstrate what he says. For example, WOODBRIDGE, probably the most out-and-out advocate of this plan of treatment, has not been able to demonstrate that there is a real value in it as employed by him. I do not think he has published his army experience, but it is certainly known to many of you that Doctor Woodbridge in treating patients in the army had a death rate higher than physicians who treated their patients with cold baths. In regard to Doctor Inglis' views that the ascent of the fever is due to feeding, I must say that I have not been able to convince myself that that is true. It not infrequently happens to me that my patients have been starved before I see them, nevertheless they get a temperature of 105° without the food that Doctor Inglis seems to think is the cause of the elevation of temperature. It is perfectly true, as many of the speakers have said, that milk is not digested by all patients. It is true that some patients do not digest milk in the various stages of typhoid fever; they may not be able to do so in the first three or four days but after that time they are able to digest milk. I never give milk until after the patient has been observed for a little while. Following that, he is put on milk sterilized and diluted. If it is diluted with limewater or Vichy it is perfectly digested. When patients refuse milk, if you try them for a few days with barley water or dilute hydrochloric acid and then try the milk you will often find that the patient can take it very well. It has been stated that milk is a good culture medium. I do not know any food that is not. That milk produces poisons under certain circumstances is also true, but it does not always do so. In regard to the use of stimulants I have not been unfamiliar with the use of whiskey in typhoid fever, having lived unfortunately not in Canada but in eastern Pennsylvania, and living, as I did, many years in Philadelphia, which is known to be a typhoid fever center, I saw a good deal of typhoid fever and my chiefs were thorough-going advocates of whiskey. As to constipation, Doctor Douglas' statement does not contradict my idea. What I mean is that in certain cases of typhoid fever, in convalescents especially, a rise of temperature sometimes occurs that can only be explained by constipation. In fact I agree with the statement of Doctor Douglas that diarrhea does not lead to safe results. I am glad to see that so little has been said with regard to the use of antipyretics. They have no place in the treatment of typhoid fever. In the army I saw many patients treated with guaiacol internally. I was convinced that guaiacol had certainly no definite effect on these cases. Cold sponging was also carried out in the large hospitals. It requires as much labor as bathing, and is not near as effective. In fact I agree with what Doctor Bonning says entirely with reference to the Brand method. In regard to the statistical material on this subject, I certainly am very much surprised to hear the statement made by Doctor Duffield. The Brand method of treatment is not carried out as fully in Germany as it is in this country. In Germany therapeutics are not practiced for the good of the patient but rather for the advancement of science. Of recent reports from Germany, however, I refer to that of Bäumler, who is just as enthusiastic as are all others who give the bath a thorough trial. The book of Doctor Hare, of Brisbane, who gives a record of nineteen hundred cases of typhoid fever covering a period of ten years with a mortality of about seven per cent., makes clear the fact that the cold bath treatment gives better results than the best treatment in hospitals where that method has not been carried out.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, OCTOBER 9, 1899.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR JOHANN FLINTERMANN read a paper on "The Question of the Contagiousness of Consumption." (See page 123).

DOCTOR INGLIS: I always enjoy the play of my imagination. It is a happy thing to imagine other countries, and places, and climes in which the things which here are so imperfect there are perfected. It seems as if things are so much better there, but as the poet says—"It's ever so far away." I fear that DOCTOR FLINTERMANN's nonmicrobic heaven is ever so far away. Perhaps if we should develop some benignant despot to rule over us he might carry out all the doctor's admirable but ideal suggestions. When the reign of socialism, for which I confess to long ardently, shall arrive; when every child that is born shall have a full rounded-out education, and there are no ignorant men and women left, then, too, that benignant tyrant —the state—may banish KOCH's bacillus. But as matters are now, the difficulty of educating an entire population is great. It is even a very difficult matter to educate the medical profession to a unanimous effort to preach the danger of contagion of tuberculosis. I am glad that DOCTOR FLINTERMANN does not approve of the compulsory notification of cases of tuberculosis as a disease dangerous to the public health, and that he condemns the plan of isolation of consumptives as inhuman. We could have had an eager controversy over these questions, which he has wisely eliminated. It still remains true that his proposition to carry out rigorous disinfection of every car, vehicle, house, public hall, shop, or any place where people congregate, is entirely out of the range of practicability. The expense would be immeasurable if the work were done effectively, and to do it ineffectively would be worse than useless. Let me suggest a better way. Let the medical profession proceed to educate the educators; let us secure in all our schools an adequate recognition of the value of fresh pure air, not only in the school room, but in children's lungs; let us see that the physical culture of growing boys and girls is as carefully planned for as their training in the use of the ablative absolute; let every teacher who punishes a pupil by depriving him of the fresh air and exercise which he chances to get at recess, be publicly branded as a criminal; let us train boys and girls to be immune in a world full of KOCH's bacilli, and numerous other bacilli also, by developing full-sized lungs, and strong hearts, and good stomachs.

DOCTOR LONGYEAR: The practical points in regard to the action which the Board of Health should take in this matter was the object the board had in asking its council of physicians to advise it upon this question. They asked the advice of the council as to the best method to take in restricting this disease, and they wished it to be done in such a manner that it would not be obnoxious to the physicians or their patients; so that after the report was read by the chairman of the committee (which we have also heard in the paper just read), we asked them if there would be any objections to a rule providing for the compulsory notification by the Health Board of cases of tuberculosis occurring in the practice of physicians, providing such records should not in any way be made public; and also providing that the patients themselves should not be notified, nor any literature sent them by the Board of Health without the consent of their physicians. We took a vote upon it, and the vote was in favor of such rules and regulations. As a result of that, as president of the Board of Health at that time, and certain circumstances conspiring to that end, it fell upon me to formulate, in the main, those rules, and those rules were the ones which were adopted by the board and sent out to physicians. It seems to me that we all agree practically with the idea of the doctor's paper—that tuberculosis is to a certain extent an infectious disease. If we agree to that we certainly should agree that there are certain reasonable precautions to be taken to prevent such infection, and as DOCTOR INGLIS has very clearly pointed out it is not possible to educate even the profession, generally, up to the desired point in this matter. The object of the Board of Health in doing this was to promulgate these ideas among physicians and as far as possible among their patients by the use of literature through the physicians, but the latter was not to be made compulsory. It was to be left to the physician whether or not the patients should be notified or literature given them. I think myself we should teach this subject in our public schools. The public should learn something of the bacteriological nature of infectious diseases. In that way we would gradually instruct the community. Until that is done I must say some more direct methods, such as employed by the Board of Health, must be employed. If the reports were to be made public by sending the names of those suffering from tuberculosis to the State Board of Health, and it should send literature, it would be very objectionable, but this our local Board of Health promise will not be done. The intention of the local Board of Health was to keep these reports secret. The matter of compulsory placarding has never been thought of by the local Board of Health, so it is not necessary to discuss it. It has endeavored to construct such rules as would apply merely to the people in this city. We tried to harmonize with the State Board of Health as far as possible, but when we felt that their rules were impracticable when applied to a large city like Detroit, the local Board of Health did not think it wise to enforce them. Another point that DOCTOR FLINTERMANN touched upon, regarding tuberculosis in cattle, I believe is an extremely important one, and we should keep that constantly in mind in dealing with our patients. I have known a number of Jersey cattle, in this city, kept by people who give them the best attention, to be afflicted with tuberculosis. It is interesting to know where these cattle go when slaughtered. While a member of the Board of Health I followed up one and found the carcass dressed and ready for sale. I believe that cattle afford a large source of infection, especially through the milk, and should be carefully looked after by properly constituted authority. Our state laws are very inefficient in that respect. As DOCTOR INGLIS says, this matter of disinfection generally is a very difficult one, and is a matter the Board of Health can hardly cope with. When looked at from its practical aspect it would involve an almost endless amount of expense and labor. The education of the people is the pivot on which the whole thing should turn.

Doctor McClintock: In the short time allowed each speaker it is practically impossible to discuss this question. One can only give an opinion. About two thousand years ago consumption was pronounced contagious, and from that time until now every hundred or two hundred years the question has been brought up again. It would look as if, were it markedly contagious, the world should have been convinced before now. I believe that without the tubercle germ there is no such thing as tuberculosis, but I would qualify this statement in studying disease germs. There is a class of germs which can be inoculated into the body by the hundreds or even million and they are readily destroyed and rarely ever produce the disease. On the other extreme there are germs which if even one or more is introduced into the body of susceptible animal or person the disease will usually follow. Between these extremes we have bacteria of all degrees of virulence and in close proximity to the first mentioned of these stands the tubercle germ. To my mind more fundamentally is a chemic constitution of tissue producing the favorable soil for the tubercle germ. In my opinion if every tubercle germ were destroyed these people would still be sick and would still die from disease—of what it is impossible to say. It occurs to me that in regard to this disease tuberculosis we are needlessly alarming the people. It should be said that the State Board do not want to quarantine but to obtain statistics. These are what all physicians desire, but personally I believe the authorities have been unfortunate in the method proposed to secure them.

Doctor Amberg: It does not appear to me that the question of reporting cases of tuberculosis can be decided by physicians. They can only give their opinion as to the communicability and danger of the disease. The rest should be done by the community or by the state. I think that physicians should express their opinion regardless of the consequences, as one of the gentlemen said tonight. If physicians abandon this principle there will be no sanitary progress. The consequences must be left to the state authorities. Permit me to quote an imaginary example: Suppose the state obliges the physician to report in a given case. The patient must be compelled to leave his place of occupation. Now let him sue the state, say for twenty thousand dollars damages. If the state is beaten the law is not valid. The question will then be decided how far the state can enforce a rule that interferes with the so-called liberty of an individual. As I said before, this question cannot be settled by the medical profession alone. The question of compulsory reporting of cases is one in which two different factors must be discriminated.

Doctor Irwin: I did not have the pleasure of hearing the paper. Personally I believe in enforcing the law. I have no ulterior motive for supporting the question. The law says that diseases dangerous to the public health should be reported by the physician. My duty as a commissioner is to carry out the law. If the law is wrong it should be righted. Doctor McClintock's argument, I can hardly agree with, but if he were a commissioner he might forget that he had any privilege in the matter. I do not believe in placarding a house unless the occupant or patient refuses to disinfect the sputum.

Doctor Stevens: I would like to ask a question: What is to be the crucial diagnostic point of tuberculosis? Is it to be the opinion formed from physical signs and the judgment of the physician whether or not the Koch's bacillus can be found, or whether the diagnosis is to be considered incomplete until the bacillus is demonstrated?

Doctor Knill: I think it is the duty of physicians to decide the issue. It seems to me that in this discussion tonight there is no reason, with our present knowledge of consumption, why physicians should be compelled to report their cases to the Board of Health. There is no good to come by it. We all admit it is wrong to notify a patient that he has consumption and isolate him. I do not see why we could not lay it aside by resolution.

Doctor Richardson: I do not think the question should rest at all as to whether it is profitable to forego isolation or compulsory disinfection. It is a question that should rest upon the medical profession to suggest any means of lessening the enormous death rate for the public welfare. It is not for the benefit of physicians themselves; it is for the good of three hundred thousand people in the city of Detroit. I, myself, will admit that the disease is very prevalent and very fatal.

REPORTS OF CASES.

PRACTICE OF THEODORE A. McGRAW, M. D.

A CIRCUMSCRIBED TUMOR OF THE PYLORUS.

Mr. F., a man of sixty-five years, called on me on November 18 to consult me about a difficulty of digestion. He was very much emaciated and exhausted, and vomited all that he ate. He had been ill for more than two years, and had had this irritability of the stomach in increasing degree for more than six months. He evidently had an obstruction of the pylorus or duodenum, but no tumor could be felt on the closest examination. His stomach was dilated. **Doctor Aaron**, who saw the case with me, made a chemical examination which indicated, if anything, an obstruction of benign character. I operated on him on November 20 by making a transverse incision, and drawing the pylorus into view. It lay overlapped by the liver, and was the seat of a circumscribed tumor. On the upper part of the tumor and the pylorus there was a strip of apparently normal tissue about three-eighths of an inch wide. There seemed to be no involvement of the deep lymphatics, and only one or two slightly enlarged glands near the tumor. I incised the pylorus in this strip of healthy tissue longitudinally, the incision extending into the stomach on one side and into the duodenum on the other, and brought the ends of the incision together with sutures. This made a large patulous canal in the place of the obstructed passage not larger than a lead pencil, which was there before. The patient rallied well, and had no fever nor pain nor tympanites during the rest of his life. On the afternoon of the 21st he vomited some dark fluid, and again on the morning of the 22d. I then evacuated an enormous quantity of black fluid by the stomach pump, and washed out that viscus very thoroughly. I believed the fluid to be blood, the result of a hemorrhage, and sent it to the College for examination, but have not yet heard the result of the investigation. He vomited no more, and on the 23d began to take food. He, however, gradually failed, and died on the morning of November 25 of exhaustion. I called rather late, and found his daughter just about to take away his remains. I succeeded in getting a postmortem, but was obliged to make it in about ten minutes. The wound had healed by first intention, and the abdominal organs were found in good condition. The pyloric wound had healed perfectly, but in dissecting it hurriedly I tore it slightly on the side. There was a small quantity of dark fluid and a good deal of gas in the stomach. I shall be interested to learn from the histological examination which Doctor Troy is about to make, whether the tumor is in reality a fibrous thickening or a cancer. I was sorry that I had not made a gastro-enterostomy, for in these cases, even though the obstruction is removed, the loss of motility of the stomach renders it more difficult to get nutriment through it.

EDITORIAL ARTICLES.

LET PETTIFOGGERING CEASE.

Whenever a citizen accepts a public trust it is at least tacitly assumed, if not openly avowed, that private affairs shall be made subservient to official duties. This is patriotism. The duties that entail upon an officer are proportionate to the responsibilities undertaken. As health is more than wealth, so matters of public hygiene are of vastly more importance than matters of public convenience and luxury. Due appreciation is not generally given, but it is nevertheless true that no department of our city government is weighted with graver responsibilities than is the board of health. It is a fact that no set of city officials are obligated to more loyal devotion to duty and circumspect management of affairs than are our health commissioners.

For the most part the health department of Detroit has been ably and satisfactorily conducted. It is true that mortality rates have been higher in former years than they are at present. But according to their lights and the support of public opinion, our health officers have usually been efficient. From year to year as sanitary science has unfolded, so has the art of sanitation been exhibited in our midst. During the incumbencies of our present health officer, and of his immediate predecessor, rapid strides in the control and prevention of the spread of disease have been made. We have been the fortunate beneficiaries of their efficient services. The present executive entered upon his duties under somewhat adverse circumstances, but by his thorough medical training and his personal qualities he has won not only the good will and admiration of the profession, but also the respect and confidence of the people. Public hygiene is a desideratum thoroughly established in the city of Detroit.

In spite of these things, however, personal animosities, pettifoggery and Pickwickian methods have dared to interfere in the workings of the board, and the possible results are not difficult to foresee. Only a fortnight ago, says *Trade*, a prominent dairyman publicly remarked, "I have no doubt that during the past year the people of Detroit ate twenty tons of fertilizer," and yet the present needs of the department of health are designed to be curtailed under the feint of economy. More than this, the proposition emanated from certain members of the board itself. Systematic efforts seem to have been made to oust, or force to resign, Detroit's most efficient health officer, to neglect the inspection of meat, and to limit the supply of antitoxin for the use of the city poor. These and similar purposes seem to have forestalled the consideration of, and provision for, more important duties, and to have dwarfed the real intent of the board. Indignation has already found public expression more than once, and unless a more liberal policy is exhibited, the people may feel inclined to administer a remedy as they have done in days of yore.

ANOTHER INSTANCE OF CHRISTIAN SCIENCE FOLLY.

Like most other up-to-date cities Detroit numbers a few Christian science faddists, but their faith, strange to say, fails here as well as elsewhere to save them from the results of their folly. The prosecutor and the public generally have been made cognizant of another instance of this erratic tendency in the case of a child of five which died of diphtheria. It seems that previous sickness in the same family had ended in recovery while the ministrations of some of these peculiar folk were going on. *Post hoc propter hoc.* Little Elsie fell sick on Wednesday and *received* absent *treatment* from a Christian science doctor, high in her cult. On Friday and Saturday, at the request of the parents, another adept called, closed her eyes and prayed in silence. Still the child grew worse. A third one was sent for but her prayer was futile. The mystery ended.

On Monday, March 5, 1900, a coroner's inquest was held and arrived at the following verdict:

> "We find that Elsie Mabel Zoeger came to her death from diphtheria superinduced by neglect and want of proper treatment, which, in the opinion of this jury, was on the part of Peter Zoeger, Mrs. Peter Zoeger, Mrs. Tryon and Mrs. Knott, and we hereby recommend that the prosecuting attorney cause a thorough investigation to be made to definitely fix the responsibility."

Upon the receipt of this verdict the opinion came from the office of the prosecuting attorney that the evidence indicated a sufficient cause for action against the defendants and there was reason to expect that the case would receive the deliberate attention that it deserved. There is a law on our statute books which makes the notification of diphtheria obligatory upon the attending physician and householder. This requirement was absolutely disregarded. Precautions for the prevention of further contagion would seem to have been a part of Christian duty even in the absence of legal obligation and yet there is no evidence to show that they were observed. Were the disease rare, mild, slow in its progress, symptomatically vague and insidious, there might be some ground of excuse for not having recognized it; but how the case of **Elsie Zoeger** could cause the alarm it did, receive the attention of persons accustomed to see sick people and to observe their symptoms, and progress so rapidly as to culminate in death within so short a time, and not suggest diphtheria or some other equally dangerous process is past comprehension. The requirements of the law are designed to be met by persons of ordinary intelligence and ignorance of them does not receive recognition. This is not the first offence of the kind in this community. It was reported not long ago that one of this sect had the audacity to certify to a death in order to facilitate a burial. All this is done in the name of *Christian science* but the cruelty perpetrated upon innocent children and the delusions intentionally produced in mentally incompetent persons savors rather of devilish science of the most contemptible kind.

Christian science is exploited among an unsuspecting people as a form of religion, which it is the privilege of anyone to believe in and practice so long as he does not run counter to established law and rights. The moment religion and medicine are confounded and the established rights of the community with regard to either are interferred with by the peculiarities of a new sect or pathy then it would seem that the duty of the prosecutor were plain, but here as in other cases no one is so blind as he who will not see. The functions of judge, jury and prosecutor are assumed in one short breath and once more justice is thrown down. The guilty go unpunished, but there is hope in the vote of the people.

ANNOTATIONS.

THE INDIAN PLAGUE COMMISSION'S ESTIMATE OF HAFFKINE'S ANTIPLAGUE INOCULATION.

Now that the Indian Plague Commission has visited India and investigated the claims made for **Haffkine**'s antiplague inoculation, we may expect an impartial estimate of its value in arresting "the black shadow of the East." Of particular interest will this be to us on account of Portugal's recent visitation, the development of the plague in Honolulu, its proximity to our colonial possessions in the far East, and its possible existence in San Francisco. The complete report has not yet appeared, but a statement of the commission's views has, by consent been published in the *British Medical Journal.* The sincerity of the commission is first evidenced by the hostile criticism of HAFFKINE's methods of preparing and using the vaccine, from which it would seem that reasonable doubts exist as to the sterility of the vaccine and to its profitable use under the present imperfect system of standardization. The statistical evidence furnished the commission also comes in for adverse remarks, and yet the conclusions reached are unmistakably favorable to the inoculation. There is acknowledged diminution in the number of attacks and of the death rate, although the protection is obtained only after a few days and may last only a few months or weeks. Furthermore, it does not invariably protect since about eight per cent. of the inoculated population may be attacked. On the whole the report is encouraging. The commission recommends the employment of more accurate methods of standardization, and sterilization of both vaccine and syringe, under which conditions it advises the practice of inoculations wherever possible, especially among disinfecting staffs and the attendants of plague hospitals.

CONTEMPORARY.

NEWSPAPER PRESCRIBING.

[INTERNATIONAL MEDICAL MAGAZINE.]

SOME of the daily papers in our larger American cities have established departments in which ailing people of an economic turn are given medical advice gratis. Thus, each of these ambitious journals possesses now, in addition to its musical and dramatic editor, society editor and sporting editor, a more or less regularly educated physician as its "medical editor."

Without stopping to moralize on the degenerate conditions which permit our great profession to be disgraced by the readiness with which certain of its members can be induced to prostitute their talents in such a manner, we pass on to consider briefly the absurdity and the dangers of this new method of obtaining professional advice free. If it is difficult, as it manifestly is in many cases, for even an experienced and capable physician to prescribe intelligently and successfully after merely looking at the tongue and feeling the pulse, with a passing glance at the *tout ensemble* of a patient, but without a careful examination, how impossible it must be for the tyros or incompetent (who alone of medical men could be seduced into accepting such positions) to prescribe with any good result for persons they have never seen!

We have recently met with a man who has had the temerity to tempt death by taking some of these ready-made, job-lot newspaper prescriptions. Some other gullible person had written to the "medical editor," stating his symptoms. In reply the latter had confidently made the diagnosis of gastric catarrh, and prescribed a solution of glauber salt to be taken several times a day before meals and a very strong hydrochloric acid mixture to be taken after meals. They were stock prescriptions such as recur half a dozen times in every column of his matter. The "medical editor" evidently does not consider stomach tubes or chemical analysis necessary to a diagnosis of gastric catarrh and has not learned that there can be a sthenic gastritis with an excess of hydrochloric acid as well as an asthenic form with a deficiency of that acid. Nobody knows what ever became of the person for whom the prescriptions were intended, but the other man, above referred to, having read the letter of inquiry and the reply, thought they fitted his case, and proceeded to try them. The glauber salt purged him excessively, though his bowels had been entirely regular before; but, nothing daunted, he cut the other prescription out and took it to a drug store. Fortunately, the apothecary was honest, and, having read the prescription and been asked if he would compound it, replied emphatically: "No, sir; not on your life. It would not be safe for you to take such an amount of acid as is here ordered."

It so happened that the man needed a mineral acid as little as he needed the purgative, since he was suffering at the time with hyperchlorhydria. Further comment on such newspaper prescribing seems unnecessary.

MEDICAL NEWS.

PROMINENT VISITING ESSAYISTS.

During the past thirty days the medical societies of Detroit have held meetings of more than ordinary notice. On Tuesday evening, February 13, Doctor George Dock, of Ann Arbor, read a paper on "The Pathology and Treatment of Typhoid Fever," before the Detroit Academy of Medicine, in the Art Museum. At the same place on Monday, February 26, Doctor Willy Meyer read a very interesting paper on "Bottini's Operation for Hypertrophied Prostate," before the Detroit Medical and Library Association. Following the meeting the Doctor was tendered a reception at the residence of Doctor Theodore A. McGraw, to which the profession of Detroit and many from Ann Arbor, Monroe and other places were invited. On Thursday evening, March 1, at the request of the Wayne County Medical Society, Doctor Henry B. Baker read, in Fellowcraft Hall, a paper on "The Restriction and Prevention of Consumption," which was discussed by Doctors Vaughan and Novy, of Ann Arbor, and Doctors Shurly and Knill, of Detroit. Before the same society on March 8, in the Turkish room of the Hotel Cadillac, Doctor Hunter Robb, of Cleveland, Ohio, presented "The Results of Modern Aseptic Surgical Technique, Demonstrated by a Series of One Hundred and Fourteen Consecutive Unselected Abdominal Sections without a Death." After the meeting an informal reception was tendered Doctor Robb at the residence of Doctor E. W. Jenks.

COMMITTEES AND EXAMINERS OF THE STATE BOARD OF REGISTRATION.

THE committees of the Michigan State Board of Registration in Medicine, for the ensuing year, are as follows: Auditing—Doctors Baldwin, Whelan and Alvord; Standards and Colleges—Doctors Alvord, William Bell and Lodge; Examinations—Doctors Samuel Bell, Lodge and Baldwin; Legislation and Litigation—Doctors Sinclair, Harison, Haze, William Bell and Alvord; Supplies—Doctors Harison, Haze and Sinclair; Registration—Doctors Whelan, Kost, Lodge and Willam Bell. The examiners for 1900–1901 are: Bacteriology, Eye and Ear, Mental and Nervous Diseases—Doctor Samuel Bell, Detroit; Therapeutics and Practice (Physio-Medical) and Chemistry—Doctor John Kost, Adrian; Surgery and Surgical Pathology—Doctor Austin W. Alvord, Battle Creek; Practice of Medicine and Pathology—Doctor Beverly Drake. Harison, Sault Sainte Marie; Therapeutics and Practice (Eclectic) and Medical Jurisprudence—Doctor William Bell, Smyrna; Therapeutics and Practice (Homeopathic) and Gynecology—Doctor Albert Lodge, Detroit; Obstetrics, Hygiene, and Health—Doctor Bion Whelan, Hillsdale; Therapeutics, Minor Surgery, and Histology—Doctor Harry A. Haze, Lansing; Anatomy, Descriptive and Surgical—Doctor Zell L. Baldwin, Niles; Physiology and Toxicology—Doctor Malcolm C. Sinclair, Grand Rapids.

A MEDICAL SUPERINTENDENT RETIRES.

AFTER seven years of successful service as Medical Superintendent of The Alma Sanitarium, the past one having been the most prosperous in its history, both medically and financially, Doctor Elmore S. Pettyjohn severs his official connection with that institution and enters upon a year's respite from the exhausting cares of professional life. The doctor will visit Europe in June, where he intends spending several months in rest and study, and will be accompanied on the trip by his entire family. He has secured passage with the medical excursion to the International Medical Congress which convenes at Paris in August. The itinerary of the party will be by the north of Ireland, across Scotland, through the east of England to London and thence via Brussels to Paris, where Doctor Pettyjohn will read a paper before the Section in Internal Pathology of the Medical Congress. After the meeting the doctor and family will visit Switzerland, points on the Rhine, and eventually locate in Berlin for the winter, where he will pursue medical study, which he expects to supplement with work at Paris and Vienna. On his return he will probably locate in Chicago and accept a professorship in one of the medical colleges of that city. Doctor Pettyjohn has greatly endeared himself to the medical fraternity of Michigan during his residence in their midst, and his removal will be deeply regretted. The announcement will be gratifying to his confreres that he has promised to send The Physician and Surgeon an occasional letter embodying his professional observations while abroad. Doctor George Frank Butler, of Chicago, will succeed to the superintendency of The Alma, entering upon the duties of the position May 1.

THE CHANDLER ACT BEFORE THE SUPREME COURT.

The medical law of 1899 is now before the Supreme Court of the State of Michigan for interpretation as to the right of the State Board of Registration in Medicine to refuse registration to persons holding diplomas from the Independent Medical College of Chicago. It comes before the chief tribunal of our state on the application of one Doctor Richard Metcalf for the issuance of a mandamus against the State Board of Registration to show cause why they should not register the applicant under the law and issue him a license to practice medicine. Attorney General Oren, in his answer in behalf of the board, denies that that institution was or ever had been a reputable medical college within the meaning of the law, but that instead it was organized for the purpose of selling diplomas to any person who might apply for them, without exacting any attendance, and that for such illegal practices its charter had been declared forfeited by the courts of Illinois. To support the contentions of the board, Deputy Attorney General Chase recently visited Chicago and secured some very interesting evidence of the character of the above institution. The college held all its sessions in one very small room, with an attendance of not exceeding three or four paying students at any one time. According to one authority the curriculum in one instance was completed in ten minutes, within which time was also compressed matriculation, examination, graduation, and licensing. The decision on Metcalf's application will be awaited with interest.

RESOLUTIONS ANENT THE DETROIT HEALTH OFFICE.

Whereas, two commissioners of the Board of Health have seen fit to recommend a decrease in the salary of the Health Officer of the city of Detroit, the chemist of the Board of Health, and a material limit to the amount of antitoxin to be supplied to the poor of the city of Detroit, the Wayne County Medical Society in session unanimously

Resolve, That the salary for the Health Officer of the city of Detroit should be not less than $5000, and that all medical and scientific services to the Health Board of the city of Detroit should be in proportion.

Resolved, That the Wayne County Medical Society recognizes the ability of the present Health Officer, Heneage Gibbes, as a bacteriologist, pathologist and executive officer, all of which are requisite in the Health Office.

Resolved, As physicians and humanitarians, we cry out against the limitation of the supply of antitoxin to those unable to purchase the same when suffering from diphtheria.

Resolved, That a copy of these resolutions be sent to the Health Commissioners of the city of Detroit, to the daily papers of the city, and the medical paper of the state, and to the Governor of the State of Michigan.

MINOR INTELLIGENCE.

Doctor Abraham Jacobi will be tendered a complimentary banquet by the profession of New York City on May 5, in honor of his seventieth birthday.

Governor Pingree has recently appointed Doctor Elmore S. Pettyjohn, of Alma, commissioner to visit the hospitals for the insane in France, Germany and Austria during the coming summer.

The new medical directory of Great Britain records the names of 35,651 qualified medical practitioners in that kingdom. This shows an increase of 534 over the previous issue. The medical service has been increased by 177.

The Michigan health report for February conveys the information that 2,673 deaths occurred during that month. This is over 1,100 less than during the same month of last year. The percentage of deaths to each one thousand of population was 14.5.

The Denver Board of Health reports 536 deaths caused by tuberculosis in that city. Only fifty-eight of the deceased contracted the disease in Colorado. The remaining deaths were of persons already affected, who sought that city for the benefit of their health.

Doctors Ida Kahn and Meiyii Shie (Mary Stone), graduates from the medical department of the University of Michigan, class of 1896, are medical missionaries at Kiukiang, China. Miss Gertrude Howe, also a student of the medical department in 1871–2, is associated with them in the work.

The inability of the executive committee of the American Medico-Psychological Association to secure The Jefferson, the most desirable hotel in Richmond, Virginia, for the accommodation of attending physicians, has necessitated the postponement of the meeting of that association from May 7–12, to May 22–25.

By resolution the Indiana Board of Medical Registration has adopted the rule that it will issue no license to practice in that state to any applicant "on terms more lenient than the rules of the state from which he comes." Evidently the board proposes to make every outlander wish that he had remained at home.

The government at Washington has recognized its responsibility in our new possession, the Hawaiian Islands, by issuing an order designating seven acres from the reservation on the island of Oahu to be used as the site for a United States Marine Hospital. This will care for the service at the port of Honolulu.

A destructive conflagration in the portion of Honolulu occupied by the Chinese, together with the burning of ten other blocks adjacent thereto, by order of the Board of Health, has served, it is believed, to effectually check the progress of the bubonic plague. Since then the deaths from all causes have markedly decreased.

Doctor Edward L. Holmes, of Chicago, died on February 21, aged seventy-one years. The doctor was for several years president of Rush Medical College and ranked as one of the most prominent oculists and aurists, filling the chair of Ophthalmology in that institution until failing health compelled him to resign active work.

Madame Medvednikova, the widow of a wealthy merchant at Moscow, has devised about $3,000,000 to the establishment of eleemosynary institutions in Russia. These include an asylum for idiots and epileptics, a hospital for incurables in Moscow and a hospital for the treatment of all manners of chronic diseases in Irkutsk.

The Cincinnati Academy of Medicine, at its recent annual meeting, elected the following officers for the ensuing year: President, Doctor Charles L. Bonifield; first vicepresident, Doctor B. P. Goode; second vicepresident, Doctor George B. Orr; treasurer, Doctor Samuel Allen; recording secretary, Doctor Harry Cone; corresponding secretary, Doctor M. A. Tate.

Doctor Leopold Schenck, the recently deposed professor of embryology at Vienna, who achieved notoriety through the announcement of his ability to determine and control sex at will, is reported to have decided to emigrate to this country for the purpose of gladdening the hearts of American women by teaching them how to produce boys or girls by indulging in bonbons or beef extract, as fancy dictates.

Agitation of the question of requiring all applicants for licence to practice pharmacy to be graduates of some recognized school of pharmacy, besides presenting affidavits attesting one year's practical experience, is now rife in pharmaceutical circles in Michigan. If this movement secures the approval of the druggists of the state, steps will be taken to secure from the next legislature the passage of a law to that effect.

Doctor Abel M. Phelps, the eminent orthopedic surgeon of New York City, enjoyed the honor of election to the presidency of the Medical Society of the State of New York at its meeting at Albany on February 1. Doctor Phelps holds the chair of Surgery in the University of Vermont, and also the chair of Orthopedic Surgery in the New York Post-Graduate Medical School and Hospital. He graduated from the medical department of the University of Michigan with the class of 1873.

Doctor Henry B. Baker, secretary of the State Board of Health, in furtherance of his idea for the establishment of sanitaria for the treatment of tuberculosis under state control, has taken steps to have public health questions discussed in schools and debating societies, for the purpose of advancing popular education of the laity on this subject. A debating society at Traverse City has already informed Doctor Baker of its decision that a hospital for the treatment of this disease should be established.

Doctor M. Eloise Walker, a graduate from the literary and medical departments of the University of Michigan, classes of 1893 and 1896, was recently the successful applicant in a competitive civil service examination for the position of head physician in the New York State Custodial Asylum for Feeble-Minded Women, located at Newark. This institution affords accommodation for several hundred patients. Our sister state is wise in requiring a civil service examination for appointment to such an important position in an eleemosynary institution and Michigan would do well to follow her example.

THIRTY-THREE lepers are now receiving treatment in the leper home of Louisiana. The legislature of that commonwealth recently made an appropriation for the erection of a more commodious building in which to care for these unfortunates. The institution will be located in the vicinity of New Orleans, thereby affording convenience for the study of the disease by scientists.

DOCTOR LEWIS S. PILCHER, of Brooklyn, New York, was elected president of the Medical Society of the County of Kings at the seventy-ninth annual meeting of that body on January 16. The doctor has been identified with the profession over forty years, having graduated from the medical department of the University of Michigan in 1866, already possessing a master's degree which he received from the literary department in 1863.

AFTER nineteen years' service as medical superintendent of the Wayne County House and Asylum at Eloise, Doctor Ebenezer O. Bennett has resigned that position. Doctor John J. Marker, formerly assistant at the asylum, has been elected by the County Superintendents of Poor to succeed him, and Doctor W. B. James, second assistant, has been promoted to the first assistancy, the position made vacant by the change in the superintendency.

THE condition of the starving in India is appalling, according to the statement of Reverend Charles M. Shelden in his first issue of the *Topeka Capital.* Four million persons are now receiving government help and the numbers are increasing daily. To this is added the horrors of an epidemic of the plague, small-pox and other diseases. Relief measures have been instituted in most of the states in this country and Michigan is doing her share.

THE Pennsylvania State Medical Council, in answer to the united request of college presidents that students from literary colleges should receive credit for work done therein, so far as it paralleled the first year course in the medical colleges, have adopted the following resolution: "*Resolved,* That in the judgment of the council, when the medical course of a literary college, as proven by the examination of the student by the medical college, covers the entire work of the first year of actual medical study, such course may be accredited by the medical college as the first year of medical study required by law."

DOCTOR LESLIE E. KEELEY, the originator of the autohypnotic treatment for inebriety, popularly known as the "gold cure," died at Los Angeles, California, on February 21, sixty-eight years of age. After graduating from Rush Medical College in 1864, he immediately entered the army as acting assistant surgeon, and remained in the service until the close of the war. He then located in Dwight, Illinois, and entered upon the practice of his profession, which he pursued in the regular way until a few years ago, when he came under the ban of professional censure by announcing a secret specific for alcoholism, and opening a sanitarium at that place. Shortly afterward he organized a company for the establishment of "gold cures" in different locations throughout the country, retaining a half interest in the same. His enterprises prospered to such a degree that he is credited with having made over one million dollars during his unethical career.

RECENT PUBLICATIONS.

REVIEWS.

CHEMISTRY: GENERAL, MEDICAL, AND PHARMACEUTICAL.*

When a text-book has been used for thirty-one years and has passed through sixteen editions in that time nothing can be said or written that will commend it more to public attention. Such has been the history of this work, which speaks for itself more effectively than the language of the most appreciative patron. The very name of the author is synonymous with a standard work on the subject. The present edition and the seventeenth, which will appear concurrently with it, have been altered and added to according to the growth of the science of chemistry.

*By John Attfield, F. R. S. New (sixteenth) edition. In one Royal 12mo volume of 784 pages, with 88 illustrations. Cloth, $2.50, net. Lea Brothers & Company, Philadelphia and New York.

A LABORATORY MANUAL OF PHYSIOLOGICAL CHEMISTRY.*

There can be no doubt as to the superiority of the laboratory method of teaching chemistry and of its especial adaptability in the branch of the subject of which this manual treats. The author has arranged the subject-matter in a systematic manner and combined with the didactic form of instruction directions for more than three hundred experiments with explanations.

*By Elbert W. Rockwood, B. S., M. D., Professor of Chemistry and Toxicology in the University of Iowa. Illustrated with one colored plate and three plates of microscopic preparations. 5⅜x7¾ inches. Pages viii–204. Extra cloth, $1.00, net. The F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia.

PRINCIPLES OF BACTERIOLOGY.*

Abbott's manual of bacteriology continues to be the leading text-book on the subject in this country. This is evident from the fact that the fifth edition has been called for since December, 1891. The author is a progressive and practical bacteriologist and his complete but concise book conforms exactly to the needs of the majority of those who are interested in this line of work.

*By A. C. Abbott, M. D., Professor of Hygiene and Director of the Laboratory of Hygiene in the University of Pennsylvania, Philadelphia. New fifth edition, enlarged and thoroughly revised. Handsome 12mo, 585 pages, with 109 illustrations, of which 26 are colored. Cloth, $2.75 net. Philadelphia and New York: Lea Brothers & Company.

TEXT-BOOK ON EMBRYOLOGY.*

We have works galore on embryology, but most of them are too exhaustive and minute to be satisfactorily covered by the student during the short course usually given him on this subject. Others now in use are too brief and insufficiently descriptive to be desirable for teachers and students generally. The author of this work has taken the middle ground and, we think, supplied a real need. The book is well written, profusely illustrated and very attractive in appearance.

*By John Clement Heisler, M. D., Professor of Anatomy in the Medico-Chirurgical College, Philadelphia. Price, $2.50. W. B. Saunders, Philadelphia, 1899.

LABORATORY WORK IN MATERIA MEDICA AND THERAPEUTICS.*

The supplemental teaching of materia medica and therapeutics by laboratory instruction is a natural result of the newer system of medical education. It is and always has been a necessity to the proper appreciation of the subject, and whatever is said of it may be applied to this particular book, for almost alone it represents this particular kind of work. The student can do no better than to follow its specific directions.

*By Daniel R. Brower, A. M., M. D., Professor of Mental Diseases, Materia Medica and Therapeutics in Rush Medical College, and his associates. Chicago Medical Book Company, Chicago.

PRACTICE OF MEDICINE.*

This well known and popular compend needs no special introduction. Not only students but also a great many physicians have already been attracted by its singular merits. It is at once concise and complete.

*By Daniel E. Hughes, M. D., Chief Resident Physician in the Philadelphia Hospital; Physician-in-Chief to the Insane Department of the Philadelphia Hospital; Late Demonstrator of Clinical Medicine in the Jefferson Medical College of Philadelphia, et cetera. Sixth Physicians' edition. P. Blakiston's Son & Company, Philadelphia, 1899.

ESSENTIALS OF PHYSICAL DIAGNOSIS OF THE THORAX.*

The first part of this work—Physical Diagnosis of the Chest—deals with the topography and landmarks of the chest, together with the various methods of physical diagnosis. The second part outlines the physical signs in the diseases of the chest, and gives a complete bird's eye view of the subject.

*By Arthur M. Corwin, A. M., M. D., Instructor of Physical Diagnosis in Rush Medical College; Attending Physician to the Central Free Dispensary, Department of Rhinology, Laryngology and Diseases of the Chest. Third edition, revised and enlarged. Price, $1.25 net. W. B. Saunders, Philadelphia, 1899.

The Physician and Surgeon

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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

THE EDUCATION OF THE LAITY IN MEDICINE.*

By THEODORE A. McGRAW, M. D., Detroit, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

A LADY of my acquaintance consulted a physician about some uterine trouble. She was quite ignorant of her pelvic anatomy and did not comprehend her physician's explanations, whereupon her doctor informed her that she was the most ignorant woman whom she had ever seen. On the other hand an old physician whom I hold in great honor, some years ago opposed the introduction of instruction in anatomy and physiology into the schools on the ground that it would prove of positive detriment to the pupils. Between these two extremes of opinion, between the physician who regards a knowledge of anatomy as the very touchstone which distinguishes the cultured from the ignorant and the physician who would withhold all medical knowledge from the laity there must be many gradations. It has seemed to me that a discussion of the kind and amount of medical knowledge which might be given with advantage to the laity might be profitable if only it could be conducted on a scientific basis and without prejudice. We ought to be able to determine in what way a smattering of medical knowledge benefits (if it does benefit) or injures (if it does injure) the individual. We cannot do this, however, if we cling to preconceived opinions and allow ourselves to be tied up with theories. We must endeavor to arrive with scientific accuracy at the facts in the case and to draw no conclusions that the facts do not warrant.

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*Read before the Detroit Medical and Library Association.

The question naturally opens with a consideration of the nature of the medical instruction given in the schools, its purpose and methods, a subject which has been rendered difficult by the prejudices with which it has been surrounded. The advocates of classical and scientific systems of instruction have made the question of instruction in physiology their battle ground and the enthusiasts for temperance and tetotalism have insisted upon incorporating their own peculiar doctrines in the matters taught. It has been influenced by a popular delusion, so widespread as to involve even so great a philosopher as **Herbert Spencer**, and has been wrapped in a cloud of sentimentality. I do not know who initiated the movement for the introduction of physiological instruction into the common schools, but as **Herbert Spencer**, more perhaps than any other man by his strong advocacy of the measure in his book on education, gave it strength, I think it well to begin this paper with a criticism of his argument.

Dividing human activities into five classes, he arranged them into what he conceived to be the order of their relative importance. First, came those activities which minister directly to self-preservation. Second, those which minister indirectly to self-preservation. Third, those which concern the rearing and disciplining of children. Fourth, those involved in the maintenance of proper social and political relation; and fifth those devoted to the gratification of the tastes and feelings. He argued that education should be so conducted as to conform to this order of subordination, and that the most time and labor should be devoted to such matters as are concerned in self-preservation. Assuming that physiological studies ministered directly to self-preservation he therefore regarded them of primary importance and devotes a long paragraph to a consideration of the calamities which men would escape if they only knew physiology.

This assumption involves two premises both of which are open to criticism. The one is that a knowledge of physiology will invest the average man with the power of recognizing the causes of disease, and the other that men who understand those causes will so regulate their lives as to avoid them.

As regards the first we must remember that there are vast numbers of physiological facts whose relations have not yet been so fully mastered as to be utilized at all in the prophylaxis or treatment of disease, and that there are many more so obscure and complicated in their relations that they can be utilized only by experts in medicine. Together these comprehend the great bulk of physiological knowledge and, unless we mean to educate the laity generally as physicians, there remains only a small class of physiological facts and doctrines from which the average graduate of the high school can draw any practical deductions whatever. Now relations which can be comprehended by amateurs in any science must of necessity be of the very simplest kind, and in physiology the deductions which pupils in our public schools are capable of making, have already been long anticipated by the popular common sense.

Physiology teaches children that alcohol may have disastrous effects on the human body, that tobacco impairs the heart, that tight lacing is unhealthful, that illy fitting shoes cause corns, that the practice of abortion is exceedingly dangerous, and that gluttony is injurious to the stomach, but did not all the world know and recognize these things before physiology was ever taught in the schools? It would be difficult to mention a single one of the factors in the causation of disease, taught in a physiology for popular use, that has not been recognized as such by laymen who have never had any physiological training whatever. The utmost that can be said for school instruction in these matters is that it has taught the pupils to see something of the *modus operandi* of well known agents in the production of morbid phenomena.

The second premise necessary for the establishment of HERBERT SPENCER's proposition, namely, that men would avoid the causes of disease if only they knew them, would be true if men were in the habit of regulating their lives by considerations of prudence or reason. The fact is, the most intelligent of men are constantly doing what they know will endanger their health and even their lives. A few examples will serve to illustrate this common experience.

No instruction in the public schools in matters pertaining to medicine can compare in thoroughness with that given in our best medical colleges. If knowledge of the causes of disease can protect its possessors, then medical students ought to be exempt from all preventable maladies. Now there is no kind of disease against which they are so constantly warned by their teachers as the venereal. From the day of their entrance into college to that of their exit they have daily object lessons illustrating the foulness of these disorders and their devastating effects. They become thoroughly familiar with them in all of their aspects. If MR. SPENCER's premise is correct, medical students would lead the most moral and circumspect of lives. The truth is—I am ashamed to say—that medical students furnish as large a contingent of these maladies as any other group of young men of equal rank in life. There are other young men who learn the danger of these diseases from experience. Every physician has had such patients, mortified and frightened, during their first attack. They suffer pain in body and anguish in mind, and vow that henceforth their lives shall exhibit spotless continence, and yet every physician has had the same men come again with a new disorder before the first had fairly disappeared. Here is knowledge that has been burned into the very flesh and bone, and yet it does not protect. Again, none know so well as physicians the dangers and disasters to body and mind caused by the opium or cocaine habit. If knowledge guides men in their conduct physicians surely would never begin the use of such drugs, and yet in my own experience, there is no other profession which yields so large a relative proportion of opium and cocaine eaters as the medical; and the worst of it is that while other men begin the use of these drugs as a rule to quiet pain, the medical man begins their employment often out of sheer recklessness. There is not a child that walks our streets and grows up in our cities who does not become aware of the degradation which comes to the whiskey drinker. He sees him hooted at in the streets, he learns of the poverty and suffering of the drunkard's family, and hears the matter discussed everywhere, from the family circle to the schoolroom and pulpit. Whatever knowledge can come from theoretical instruction and the exhibition of object lessons is shared by every boy in the community. I do not need to say how many there are who nevertheless become drunken, and how feebly mere knowledge of evil can contend with the many influences which impel to the downward course. I have seen a professor of ophthalmology, who is very emphatic in the warnings which he gives to the public as to the abuse of their eyes, read for an hour at a time in a jolting railroad car by a waning light. The nervous specialist, who writes papers about the effects of the strain of modern life on the nervous system, burns himself the candle of life at both ends. Sick men who know from repeated experience that certain articles of diet disagree with them constantly recur to the old forbidden fruit. There is, in truth, no greater delusion than that prevalent in the community, that men can be restrained, in any great degree, from following out their instincts by mere considerations of prudence, for with the vast majority, prudence is the very weakest of all the virtues.

If, then, the study of physiology does not add materially to the popular knowledge of the factors which cause disease, and if the knowledge which men acquire from that and other sources has little influence in restraining them from those courses which produce disease, then the feeling which is very general, that instruction should be given in those branches for the material benefits which will ensue to the pupils is founded on error.

After careful consideration I have myself come to the conclusion that, except for physicians and professors of natural science, physiology is the most useless of all studies, if we mean by usefulness only material gain. While the majority of people who urge this study in the schools are actuated by a belief in its great utility, there are others who are influenced by sentiment and regard it with a peculiar reverence. Like the physician who pronounced her patient an ignoramus because of her anatomical ignorance, they believe such learning to possess a certain sanctity and wonder that anyone could busy himself with extraneous matters before acquiring at least a superficial knowledge of his own insides. Like many other sentimental prejudices, this, too, will not bear criticism. Indeed, if we were to plan our education according to reason, and, as HERBERT SPENCER recommends, study first those things most necessary to our self-preservation, we should take up our own organism last of all.

The fate of a man is determined by two controlling influences. The one is the form and nature of his own organism, and the other the environment which acts upon it. The first is a fixed quantity. As a man is born, so is he. He cannot change himself except within very narrow limits, and then slowly and by changing his environment. He cannot make one hair white or black, nor add one inch to his stature, nor make perfect any organ of his body which is defective. The study of his own structure, therefore, can have, after all, but a slight effect upon his fate. It is far otherwise with the outer world which he must understand if he is to survive in the battle of life. He must learn to recognize those things which are hurtful and cling to those which are good. Fortunately for him in this age and country, he is able to change his environment if the conditions should prove unfavorable to his development. He may move into other lands and enjoy other climates. He may change his neighbors, his associations and his business. Now which is the most reasonable for him to study, his anatomy and physiology which he cannot altar, or his environment over which he can exercise an influence that might prove of incalculable benefit? Which is most necessary for a child to learn—that fire will burn his fingers or that animal heat is produced by a species of slow combustion?

Again, there are others who argue that such studies are necessary in order to make a child generally intelligent, and it may be worth while to inquire whether the development of so-called general intelligence is a proper object of school discipline. As concerns material things, there are two kinds of intelligence. The one is the scientific intelligence. This is acquired only by hard study and prolonged attention. It demands for its production infinite painstaking, accurate observation, exact methods of research and logical, dispassionate reasoning. The knowledge it produces is exact and as far as possible complete. The influence of scientific study on the individual is to make him methodical, careful, accurate and modest, for no man can study in this way any branch of human knowledge without becoming soon aware of the infinite depths into which his reason cannot penetrate.

Now the other kind is the so-called general intelligence. It is composed of knowledge, imperfectly digested, which men pick up on the streets, read in the newspapers, or learn from Chautauqua lectures or university extension courses. It is acquired not by hard work but by a species of mental dissipation in the idle hours when men rest from their real labors. It is inexact, inaccurate and incomplete, but has the curious effect of generating an enormous self-complacency. It is remarkable how men, who are modest in regard to those matters in which they are experts, will sometimes exhibit the wildest self-conceit when discussing subjects about which they have only the most superficial knowledge. Men who pride themselves on their general intelligence are ready to pass judgment on all questions that arise without troubling themselves at all about details. They know more about finance than the bankers and will criticise the decisions of the supreme courts. They are so cock sure as to the correctness of their judgments in matters of political or social concern that they are ready to pull society up by the roots in order to reestablish it on a basis which will bring the millennium. In medicine, they are enthusiasts for osteopathy, Christian science, and antivivisection movements, and read with delight the books which the proprietors of various sanatoriums issue to advertise their institutions. They acquire a curious facility with technical medical phrases. Who does not know the woman who talks glibly about her fallopian tubes and sigmoid flexure and bores her physician to death with her long winded efforts to exhibit her knowledge?—or the man who fills his pockets with little pills which he offers to every chance acquaintance?

A certain writer enumerated as one of the many causes of the French revolution the peculiar habits of thought of the French nobles and literary men. They were possessed of great general intelligence. Shut out from all political life and debarred from all kinds of work their energies were expended in a kind of mental dissipation. They investigated in an amateur kind of way everything under the sun and passed their time in discussing questions of political economy, medicine, chemistry, astrology, spiritualism, geography and local gossip. They developed in so doing a marvelous power in conversation that made their society the most delightful in the world. But while they could discuss military matters, they did not know how to fight; while they could talk about economy, they were spending their substance; and while they assumed to be philosophers, they believed in the most absurd superstitions. Apparently the most intelligent, they were in reality the most ignorant and helpless of men.

I do not know of any other use for general intelligence than to afford material for conversation and social entertainment. It is worthless as far as the practical affairs of life are concerned, and whatever advantage may accrue from its enlarging our mental horizon is counterbalanced by the false conceptions to which it gives rise by the inaccurate and partial character of its knowledge. Unfortunately many Americans make a fetich of this general intelligence. Some have urged its cultivation in the schools and have advocated to that end the reading of the daily papers. Now if there is one thing in which the school may and ought to be superior to the home, it is in instituting an exact and uncompromising mental dicipline. A child should be taught from the very beginning to learn everything, whether it be Latin, algebra, mathematics or natural history, by scientific methods, that is, as far as instruction is carried, it should be methodical, accurate and complete. That slovenly habit of thought which comes from much newspaper reading should not for a moment be tolerated in our public schools. The best test of the value of the so-called general intelligence is the estimation in which it is held by everybody, with respect to the science, profession or trade in which he is an expert. Is there a physician who does not in his heart feel contempt for that kind of intelligence when applied to medical affairs?

If, then, the study of physiology in the schools has no material utility, and if there is nothing in the subject which should make it a religious duty on the part of our children to master it, and if the addition which it gives to the general intelligence of the child is worthless, the question arises whether it should be taught in our schools at all? The answer to that question, it seems to me, would depend upon the method in which the instruction is given, and as that method would depend largely upon the purpose for which it is given, we may say that if instruction in physiology is given for the purpose of teaching children to avoid bad habits, or to shun disease, or to acquire a smattering of medical knowledge, it ought to be discontinued. There is, however, another purpose which may be attained by physiologic studies if they are properly conducted, a purpose which, though of no material advantage, would result in great intellectual benefit. Physiology is a part of natural science and if, without loading it with philanthropic projects, its study were pursued like that of any other branch of natural science, it could not fail, by inculcating scientific methods of investigation, to be of vast benefit in mental development.

If taught as a popular fad, it can have no other than a bad influence, but if taught as a science, it will develop those qualities which distinguish scientific men, and whatever may be a child's future occupation, the habit of thought acquired in scientific study, the accuracy of observation, the persevering industry and the logical reasoning could not fail to be of the greatest advantage. In many children there would grow a taste for natural science which would, even though pursued rather as an avocation than a business, afford them not only great pleasure, but also that protection from vice which an engrossing occupation always brings with it. But to accomplish the best results its study should be rigidly restricted to its scientific aspects and divorced from all influences which would aim to turn it from a pure science to a moral study. It should not be subordinated to a crusade against alcohol or tobacco nor made to serve as a basis for instruction in therapeutics.

Now leaving the consideration of physiology as a school study, let us consider the influence on the lay mind of popular lectures and books on medical practice.

As there is perhaps no branch of learning which excites more interest and curiosity in those who are not adepts, than medicine, so books which treat of medicine in a popular manner never fail in securing readers. The peripetetic lecturers on medicine are for the most part either physicians who have failed in practice and take to lecturing as a means of earning their living or such as seek to get practice by means of public demonstrations. The vast majority of popular works on medicine, too, have the same taint of self-interest. They are for the most part written by men either as personal advertisements or to call attention to some sanitarium. The motive is not professional or philanthropic but purely commercial, and the subject treated is so handled as to make it subserve the commercial end. Whatever truth may be told in the pages of such books is used merely to give credence to gross exaggerations and often false statements of fact.

On the other hand, the comparatively few popular treatises on medicine, which are published in good faith by honest men who believe in cultivating the general intelligence, are too often incited by zeal for some reform and warped from the exact truth to accomplish that purpose. Even if that is not the case, the inherent difficulties which lie in the way of preparing a work on medicine which is so simple that it may be understood by a public gifted only with general intelligence, and yet so thorough as to be of practical use, are so great as hardly to be overcome. Even newly graduated physicians who have spent four years of study in medicine hardly comprehend what they have learned until their theories have been proved and corrected by practice, much less can any man hope to acquire valuable knowledge of this kind by the cursory perusal of a medical primer. I have never yet seen a popular work on medicine which I could imagine to be of any use to any living creature, and the whole subject might be dismissed here if it were not that some of these works have great power in producing evil. This evil may be accomplished in three different ways: first, by affording certain individuals the means of committing crime—such as committing abortion or giving poison; second, by inducing ignorant people to practice medicine. The astonishing effrontery of ignorance is nowhere so manifested as in the presumption which leads men and women versed in the very elements of the medical art to offer their advice and services to the sick. The injury which may be accomplished by popular medical treatises in these ways is so apparent, however, as to need no discussion.

It is of another kind of injury that is done to innocent readers of such literature that I wish to speak, an injury that is rendered possible only by the fact that many good people buy such books as actual guides for conducting their own lives and put that implicit faith in the printed word which they would never think of giving to the authors in person. For its discussion it is first of all necessary to call your attention to a physiologic law, which is less appreciated by physiologists than by practitioners, for the reason that it cannot be demonstrated by experiments on the lower animals. Even physicians, who become familiar with its manifestations, pay too little attention to it in practice. It is a law somewhat difficult to formulate but which may be expressed as follows: "The effect of consciousness on any organ of the body is to cripple its action and if long continued to injure its nutrition." The organism is an automatic machine which works best without interference and nothing so interferes with its mechanism as a constant mental attention. This is even more true of the organs of vegetative life than of those under the direct influence of the will. Violations of this law cause the most perplexing phenomena which physicians have to encounter. Whenever the attention is fixed upon any organ of the body with a morbid intentness, whether by the sight of disease in others, or by reading exaggerated accounts of morbid phenomena, or by the reason of the person's own nervous illness, there occurs a disturbance of nutrition which may cause loss of function, neuralgia, or paralysis, and if the attention is continued sufficiently long and is accompanied with depression, may result in actual disorganization. We, who are surgeons, see the effects of the violation of this law in its most grotesque forms. Out of a multitude of experiences in my own practice, let me cite but one or two.

Some years ago, the late DOCTOR INGLIS put in my charge a lady who had a neuralgia of the breast. This neuralgia had the peculiarity that it was intermittent. Every month was divided for her in two parts. During two weeks of the month she suffered pain; during the other two weeks she was free. There was in the breast a small fibrous nodule which I excised. The operation proved of no benefit. Just at that time the constant electric current was introduced into practice and I had ordered a battery. It had been lauded as a remedy for neuralgia and when I proposed its use to my patient she readily consented. I expected the battery on a certain day and made with her an appointment, but the battery did not come. A second time she came to be again disappointed. The third time as she entered one door the battery was brought in by another and I filled the cells with fluid and made an immediate application to my patient. I was astonished at the effect. Even two pairs of cells produced such a disturbance that the lady grew pale and faint. The next day, on the application of the two pairs of cells, she actually fainted. After that I applied the electricity at her home for several weeks in succession. It had, however, not a good but an evil effect. The neuralgia, which had been intermittent became continuous and the poor sufferer had no rest. She is not to be blamed, therefore, for sending me a note to the effect that "Allopathic medicine was too strong for her and that she would go back to her old love, homeopathy," for she had been a strong homeopathist. Shortly afterward I had occasion to use the battery again, but could get no current. After many futile efforts, I sent the battery back to New York whence I received a letter from the makers stating that an important connection had been omitted. There never had been a current through the battery and the continuous neuralgia was simply the effect of a fixed and morbid attention.

I was called once to see a very pretty young girl of twenty years who had been on crutches for years. She had, when about fifteen years old, fallen and severely bruised her hip. Her physician had impressed upon her the necessity of quiet and the danger of possible hip disease. She never had recovered the use of her limb, although she had been treated by one of the most noted surgeons in New York as well as by many others. When I first saw her she carried her left leg in the position usually assumed by patients with hip disease and complained of great and constant pain. I was struck, however, on examining the limb to find a well developed thigh and leg such as such patients can never show after years of suffering from hip disease. I put her under an anesthetic and found a perfectly free and smooth motion of the hip-joint. It was plain to me that I had a case of unconscious simulation of hip disease. I insisted upon having the girl use her limb and walk, and succeeded partially in restoring its use. As soon, however, as she went back to her country village she relapsed into her old habit. A young doctor became interested in the case and consulted an eastern specialist in nervous disorders about it. The eminent physician advised a course which eventually proved successful. The young physician made love to his patient but lamented her lameness which prevented marriage. She was aroused and made a great effort and her lameness presently entirely left her. The doctor, whose amorous advances had been inspired solely by professional interest, refused to keep the engagement and was obliged to leave the place to escape the indignation of the neighbors.

In this case the too emphatic warnings of the physician had directed the attention of the patient so powerfully to the infused joint as to cause a constant neuralgia and to prevent recovery, while the hope of love and marriage had, by distracting the attention and directing the mind into other channels, enabled her to overcome the morbid habit of years.

I could narrate many such histories of joint affection, induced by a morbid attention, the cure of which was not always possible, even when the nature of the malady was fully realized. Among the troubles arising from this cause, those of the generative organs of both men and women are the most frequent, and often the most intractable. Every physician who has had much to do with uterine diseases, has met great numbers of women who are constinually complaining of pelvic pain and distress, and yet on the closest examination exhibit no objective symptoms whatever. Such women run from one gynecologist to another, getting no relief, even when the uterus and all of the appendages are sacrificed. If they escape with unmutilated organs they sometimes surprise their doctors by remarkable cures under Christian science, or the laying on of hands, or some other tomfoolery. The habit so many women have of discussing their maladies in public on all occasions has a great deal to do with generating these nervous troubles. I believe, too, that the ill advised examinations of young girls for functional disturbances which nature would often correct if not interfered with, are responsible for habits of invalidism which comes from diverting the attention into morbid channels. A too anxious mother brings her daughter to a too willing physician, and the whole current of a yonng girl's life is changed for the worse.

Most instructive in the consideration of this class of disorders are those affections of the male generative organs which are caused by reading the advertisements of quacks and those books on the generative functions which are written for the general public. It is one of the saddest, and to the medical profession one of the most shameful, chapters in the history of medicine. When the growing boy arrives at the age of puberty the sexual instinct comes upon him often with an almost irresistible force. In mind and morals he is, in perhaps the majority of cases, a young savage, held in restraint only by habits of obedience and the presence of society around him. Yielding to this sexual impulse many boys seek at once relief and gratification by self-abuse or illicit intercourse. Nature herself provides a safety valve by emptying the distended seminal vesicles by involuntary discharges, which take place usually in sleep. In whatever way these seminal discharges take place in this riotous time of youth, even though their occurrence is frequent, they do no harm whatever. Nature, which has caused the explosive energy which marks that period of development, has furnished the healthy young man with a recuperative power which defies all expenditure which is kept in reasonable limits. It is a moral vice when the young savage gives way to his sexual desires, but it is not that physical evil which many even enlightened physicians believe it to be. It is the shame of the medical profession that books, written ostensibly for the guidance of the young in these matters, should have interpreted these physiological discharges as morbid phenomena, and have portrayed them to the sensitive and excitable minds of youth as diseased conditions which would inevitably increase in gravity until the victim would lose all procreative power and become a mental and physical wreck. I have read many of these popular works on the generative organs, which are read by young men with great avidity, and it has never yet been my good fortune to meet one in which these lies were not repeated in tones of solemn warning.

Involuntary seminal emissions are not morbid phenomena. They do not cause, in an otherwise healthy young man, even though frequently repeated, any loss of sexual power, they do not tend to increase in frequency, and as long as the sexual vigor persists and has no other way of relief, they cannot be prevented. When the seminal vesicles become filled to overflowing they will contract on their contents and cause a discharge, and a young, chaste, unmarried man might as well try to stop passing water as to prevent these physiological overflows.

I need hardly say that there are conditions of mental or physical disease in which great irritability of the sexual organs may form one of the symptoms. The sexual irritability is then merely the effect of other morbid causes. Such cases have nothing to do with those under discussion. Now, when such a young man is unfortunate enough to get posession of one of these infernal books he becomes seized with a great fear. He finds, as he thinks, that he is ill and on the road to perdition. His attention becomes fixed upon his sexual organs, with a constant depression. Every physiological discharge plunges him into a profound melancholy. His mind becomes distracted from business and he shuns society. He seeks for relief in every direction, and takes medicine from innumerable physicians to cure a disease which does not exist. The attention fixed night and day upon his sexual organs causes an extreme irritability. The teased nerves become more and more irritable, the seminal vesicles contract more frequently and with less and less provocation, until finally discharges will occur in the day time as well as by night, without any sexual desire or any erection. This disastrous course is determined solely by a constant mental interference with a natural function. In a practice of thirty-six years I have seen multitudes of such cases, and have made them a special study. I can state, as the result of careful investigation, that the majority of men so afflicted have been rather more than less chaste than their neighbors. The reckless man who indulges in illicit intercourse regardless of results, escapes this kind of trouble. It is the shy, sensitive and often moral man who falls a victim to popular medical literature. Some of these patients under proper advice recover, a few end their days in the insane asylums, many pass into a forlorn and cheerless bachelorhood, the victims of professional lies and exaggerations.

There is, however, hardly a department of practical medicine in which physicians may not meet with similar experiences. I have seen, in certain water-cure literature, rules of diet laid down suitable for an anchorite, and have had patients whose dyspepsias have dated from the perusal of such works. The stomach is one of those organs which will not tolerate a fussy oversight and constant mental observation. Neither are rigid formulæ adapted for the ever varying conditions of mankind. The healthy stomach, if hungry enough, will digest anything in the way of food, and can be taught to endure all kinds of irregularities. The savage who eats all sorts of food whenever he can get it, and starves today and gorges himself tomorrow, is never dyspeptic.

The influence of bad cooking in the production of disorders of digestion is vastly overrated. If badly prepared food had any such influence the most of the inhabitants of Michigan and all in the British Isles would be groaning with indigestion. Neither can gluttony, which is ordinarily the sign of a magnificent stomach, be credited with the damage assigned to it in such publications. LOUIS XIV, who outlived all his contemporaries, was a typical glutton, and until he lost his teeth a grand speciman of a healthy man. It seems as if it were impossible for a physician to prepare a work on medicine for popular perusal without making statements which are more or less exaggerated and untrue. This proceeds partly from a desire to scare readers into good habits, and partly from a tendency in medical men to lay down laws for the well, which have been suggested by observations on the sick. There are men who are born feeble and others who have become ill, and such need peculiar regulations adapted to their conditions, but it would be absurd to draw general conclusions from such cases and apply them to all mankind. It is a question whether it is possible to formulate rules even of hygiene, which are universally applicable. The man of feeble constitution needs a fostering care which might be even injurious to one more robust, by interfering with his full development. Nature has made the healthy man elastic and capable of accommodating himself to all kinds of irregularities. In the struggle of life this capacity is of enormous advantage to the individual possessing it. The man who can endure hunger, cold, heat and fatigue, who can eat the most indigestible food at the most irregular hours without ill effects, who can go without sleep when necessary, and sleep whenever and wherever occasion offers, the man whom work never tires, is he who will win the battle, other things being equal, even now under the conditions of modern life. The hygienic education of a child should, therefore, be adapted to his powers as well as his needs, and the strong child should not be tied to an ironclad routine that might be a necessity for a weaker nature. I do not think that physicians sufficiently realize the difficulty in giving judicious instruction to persons uneducated in medicine. If such instruction is not judicious it may do much harm, and if judicious may be misunderstood. The aim of this paper has not been to solve the many problems associated with the question of the education of the laity in medical matters, and, least of all, to establish any dogmatic rules. I have desired rather to call your attention to certain phases of the subject, and to suggest the advantages which might arise from subjecting the question to a more scientific treatment.

OBSERVATIONS ON INFLUENZA.*

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LA GRIPPE is a disease which many persons believe to be of recent origin, but it is recorded prior to the birth of Christ, and is said to have made great ravages in the Athenian army in Sicily. In many of the earlier epidemics the disease was credited with being of Russian origin, arising in the east, travelling westward, and not partial whom it attacked. One reason, probably, for having been thought to be a new form of disease is its recurrence at long intervals, thus being new to a generation springing up in the meantime. It has received various names from its first appearance to the present time. CULLEN called it "Catarrhus e Contagio," and under that head, in his nosology, may be found a copious reference to recorded accounts of epidemic catarrh as it has been observed to spread over great portions of the world. In France the disorder thus prevailing is styled la grippe. The Italians putting the cause for the effect, called it influenza, "the influence," and this last term, influenza, has now become naturalized in our language.

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*Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

The symptoms, taking them altogether, are somewhat as follows: The patient is chilly, and perhaps shivers; presently headache occurs, with a sense of tightness across the forehead, in the situation of the frontal sinuses; the eyes become tender and watery; and sneezing and a copious, acrid defluxion from the nose ensues, followed or accompanied by heat and uneasiness about the throat, hoarseness, a troublesome cough, and oppression of the breathing. In short, the symptoms are the symptoms of catarrh, including in that term all the varieties thereof that are sometimes met with separately—gravedo, coryza, bronchitis; and with these symptoms, a sudden, early, and extraordinary subdual of the strength and, most commonly, great depression of spirits. A debility which comes on at the very outset of the complaint is one of its most singular phenomena, taking place, in most cases, almost instantly, and in a much greater degree than would seem proportioned to the other symptoms of the malady which it thus ushers in. Indeed this rapid and remarkable prostration of strength is more essentially a part of the disorder than the catarrhal affection, which sometimes (though rarely) is absent or imperceptible. It is upon the mucous membrane, however, that the stress of the disease generally falls, especially upon the internal lining of the air passages; that of the alimentary canal suffers in less degree. The tongue is white and creamy, the palate loses its sensibility, the appetite fails, nausea and vomiting are not uncommon, and sometimes there is diarrhea. The pulse, in the uncomplicated disease, is soft, and generally weak. The skin, at first hot and dry, soon becomes moist, and sometimes exhales a peculiar musty smell. The patient complains also of pains in the limbs and back, and of much soreness, a bruised, fatigued feeling along the edge of the ribs, and various parts of the body.

In its simple form and ordinary course, the disease abates of its violence after two, three or four days, and the patient is usually convalescent before the termination of the week; but cough and much debility are apt to survive the other symptoms, and while these continue the complaint is very easily renewed. Preexisting disease and peculiar constitutional habits and tendencies modify considerably the character of the influenza, as it affects different persons. It is apt to be complicated with bronchitis, pneumonia, rheumatic affections of the joints, neuralgic pains, muscular rheumatism, cerebro-spinal meningitis and other lesions of the nervous system, such as hypochondriasis, melancholia, mania and paralysis. A disease that complicates so many other maladies is certainly one demanding our closest scrutiny.

What shall we say as to the cause of this peculiar disease? CULLEN believed influenza to proceed from contagion. Is not the visitation altogether too sudden, too widely spread to be capable of explanation in that way? or is it infectious? What I wish to point out is that the influenza pervades large tracts of country in a manner much too sudden and simultaneous to be consistent with the notion that its prevalence depends exclusively upon any contagious properties that it may possess. You are aware that it appears in all parts of the country within the space of a few days. It has been observed to occur on land and on board ship at the same time. It has been supposed that the occult morbid constitution of the atmosphere gives the predisposition to the disease, and impresses upon it its peculiar character of early and extreme depression, while the catarrhal symptoms are occasioned by the sensible properties of the atmosphere, especially by frequent and rapid changes in its temperature. Influenza does not depend upon any mutations in the ordinary and obvious qualities of the atmosphere, upon any degrees or variations, I mean, of its temperature, its notions, or its moisture. It appears at all seasons of the year, spring, summer, autumn and winter; cold, wet, hot and dry. One conjecture respecting the exciting cause of influenza is the presence of ozone in the atmosphere. Pure or atmospheric oxygen, when exposed to the action of electrical sparks, is transformed into an odoriferous matter, which is called ozone, and which is believed to be merely an allotrophic form of oxygen. Ozone has remarkable purifying properties. It has also the effect, when breathed in large quantities, of irritating the mucous membrane of the air passages. This may explain the catarrhal result. This brings us to the last theory, namely, the germ theory. Recently bacteriology has come to the aid of the physician and surgeon, and has enabled him to make a more correct diagnosis than could otherwise have been done. Bacteriological evidence, while far from being a positive proof of a disease in every case in which employed, yet it is beneficial in negative results. Bacteriologists may find present in the lungs, the sputum, and the throat, respectively, pneumococci, tubercular bacilli, diphtheritic bacilli; but on the closest inspection and investigation fail to find present the diseases attribited to these germs. It is, therefore, not positive evidence of disease to find present a characteristic germ. There are germs and there are pseudogerms.

In 1892, Pfeiffer and Canon discovered a bacillus which is believed to be the specific cause of influenza. These bacilli are very small, moderately thick, usually occurring singly or united in pairs, but threads or chains of three, four or more elements, are occasionally found. This bacillus is very sensitive to desication; a pure culture diluted with water and dried is destroyed with certainty in twenty-four hours; in dried sputum the vitality, according to the completeness of drying, is retained from twelve to forty-eight hours. It does not grow, but soon dies in water. The thermal death point is sixty degrees centigrade with five minutes exposure. In sputum at twenty degrees centigrade they retain their vitality for from a few days to two or three weeks.

Recently Cantani has shown that it is possible to produce an infection of influenza in rabbits when inoculated with small doses of living bacilli, provided the point of least resistance is chosen for the inoculation, namely, the brain, upon which the toxic products of the bacillus influenza acts most powerfully. Later, Doctor Wynekoop, of the department of health, Chicago, in his vital statistics report published in the July bulletin for 1892, says that by his method of demonstration the influenza bacillus can be demonstrated with as much certainty and promptness as is that of the diphtheria organism. He also reports that the fatality has been greater among females than males, the percentage being fifty-eight and four-tenths to forty-one and six-tenths; likewise that fifty per cent. of deaths from influenza are among persons over sixty years of age. This report covered from January 1 to April 30, 1899. Doctor Wynekoop directs special attention to the fatal influence on other diseases, especially those of the respiration. In our own experience we have found this complicating tendency a troublesome factor, especially in aged people, the most frequent complications being those of the respiratory and nervous systems, in either case the tendency to relapses being very great.

The treatment of a disorder epidemic in its nature, infectious and often complicated, must of necessity be one of no fixed order, but rather a treatment of symptoms in accord with the changes occurring from day to day, or time to time. The patient is best put to bed, or, failing this, and we sometimes fail, confined to a warm room. If the chill and prostration be great, give stimulants. I usually endeavor to relieve the pain as quickly as possible, for I find patients follow further directions more readily if relieved of pain; besides, I think this is the more humane way to treat suffering. I frequently give for the relief of pain, in these cases, a tablet or capsule of two and one-half grains each of acetanilid and salol. This dose, repeated if needed, relieves pain, reduces temperature and acts antiseptically upon the gastro-intestinal tract. Two or three doses of this kind makes the patient feel more comfortable and in better humor for taking physic, a very necessary factor in these cases and one that should seldom be neglected. I find two or three grains of calomel with a few grains of bicarbonate of soda at bedtime, followed in the morning by salts or Seidlitz powders, a good practice. If the cough be troublesome, and it frequently is, give from two to five grains of Dover's powder and one or two grains of quinine in capsules every three or four hours, as found necessary to control symptoms. The most successful system of treatment is that of symptomatology, from day to day as indicated.

The sequelæ of influenza require varied treatment, each according to its special nature. I encountered two cases, during the past year, of very highly congested, painful conjunctivitis following what I thought were common colds, but more probably were mild cases of influenza. The pain was intense and neuralgic in type. The congestion receded very slowly. My treatment was atropia to slightly relax the pupil, applications of iced water, constantly, in the one case, warm poultices in the other. The iced water seemed to give the best results. The patients were in the same family. Internal treatment consisted of daily flushings of the bowels by epsom salts. The patients were both fleshy. Both recovered, but one has since had sciatica, with effusion, which was treated with five grains of calomel at bedtime and salts in the morning, followed by five-grain doses of kali iodide every three hours. Recovery ensued. Repeat calomel in few days, if needed. There are many nervous sequelæ to influenza. The treatment of these deviations must necessarily be symptomatical. To give treatment for each would extend my paper beyond the accustomed limit for such papers.

Having called in question bacteriology, and slightly insinuated a want of confidence, I feel it due to both that I should right myself by further alluding to the matter; and would say that my hope is that the untiring efforts of the bacteriologists may be rewarded by revealing the real cause of influenza and *all forms of disease.* I do not think that it has been satisfactorily demonstrated that the presence of germs is positive proof of the presence of disease. I do not understand from what I have read or learned from bacteriologists that they themselves feel that they have attained to that perfection in knowledge that enables them to satisfactorily prove the actual cause of disease. That they can demonstrate the presence of bacilli is true, but that the presence of bacilli is positive proof of disease is unproven, I think, from the fact that bacilli are frequently found in healthy persons.

May I ask what is the substance in us that protects us from disease? Is it the defective production of tissue-protective proteids that lays us open to disease; if so, by what means can we ascertain the want of balance thus required? I submit that in health we have a constant protective production of proteids; that it is the lowering of this proteid production that subjects us to attacks by disease; that the true secret to the cure of all disease is the correct knowledge of how to know when these natural protective proteids are defective and to be able to restore them; and that it is to bacteriology that we trustingly look for the solution of this important question.

FAULTY METHODS OF EDUCATION AS A CAUSE OF NEUROSES IN CHILDREN.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

WHEN asked, a few days since, to read a paper before the Academy I felt that I might with some degree of satisfaction interest the members in what appears to me to be a prevalence of neurotic conditions in school children, induced by the errors of parents and school teachers in overcrowding with mental work these susceptible subjects at a time when their nervous systems are in such an unstable condition.

I feel quite sure that there is not a physician present but will concur in the belief that the prevalence of neurotic tendencies has never, since the world was first peopled, manifested itself more among the school children than it does at the present time, and there is no doubt that this country contributes as large, if not a larger proportion of sufferers from the various forms of neuroses than any other. "It is a fact that in five cities of our country alone there were during the last school term over sixteen thousand children between the ages of eight and fourteen taken out of the public schools because their nervous systems were wrecked and their minds incapable of proceeding further in the outrageous cramming system which exists today in our schools."† Even the literature of the day calls our attention to the prevalence of these conditions by teeming with neurotic characters. It would be beyond my power and entirely beyond the scope of this paper to trace the causes of a neurosis back to its origin. "However, you will understand that while the infectious diseases and unhealthy environments are accountable for the taint in some instances, the

*Read before the DETROIT ACADEMY OF MEDICINE.

†EDWARD BOK: *Ladies' Home Journal*, January 9, 1900.

primary and principal causes are, it is almost universally agreed, due to phthisis, syphilis and alcoholism."*

It will be seen, therefore, that the majority of diseases of a neurotic character in children are inherited, and that the present generation is doing penance, as it were, for the sins of its forefathers. I believe that it is pretty generally understood that this neurotic taint is in this way transmitted, and that chorea, epilepsy, neurasthenia and hysteria are the forms of neuroses most commonly met with, the latter of which is the most interesting and important. Since the investigations and teachings of CHARCOT a great change has been wrought in the minds of physicians in regard to hysteria. By the French school of neurologists the opinion is held that hysteria in the child is due wholly directly or indirectly to heredity, although it is recognized that certain accidents can excite and render active this latent predisposition, such as education, emotion, contagion and traumatism. If it is granted that heredity is the principal cause of hysteria and the other manifestations of neuroses in the child, then it must be plain that the remedy and possible cure lies in the judicious supervision and careful rearing of these children.

The existence of the neurotic tendency does not preclude the possession of talent or even genius. Some prominent neurologists advance the theory that those who possess the mental quality called genius are degenerates, or that the possession of the quality is sufficient evidence of a neurosis. These neurotic children, besides being often gifted mentally, are quite frequently, apparently, physically vigorous, but it will be found that the vigor of future generations is not enduring and mental strain cannot be sustained, so that these subjects will pass through various stages of degeneration until they become extinct.

Overpressure in education, in very many instances, is the cause of the breakdown. Conservative medical men who have given their lives to the study of children, place the number whose health is shattered by overstudy at more than fifty thousand each year. Most of our pediatrists lay stress upon overpressure in school work as an exciting cause of hysteria, chorea, epilepsy and many of the neurotic states. (I might say here that I purposely omit other causes in order to confine myself to the title of the paper.) Overpressure in education and the cramming system for an examination are points I wish to especially dwell upon. While the indications of overpressure are seldom met, except in persons in whom there is a morbid heredity, still modern civilization has made our children of such an unstable equilibrium that the signs of overpressure manifest themselves early, and the neurotic states are much more easily developed. These

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**Journal of Pediatrics*, 1897.

children are not only affected by the overstrain of study but are likewise subject to the play of the emotions incident to excitement and worry of an approaching examination; for these children are expected to gain good markings and pass the examination, and this anxiety is prolonged until the completion of the school and college career. The educator urges pupils without regard for the strength or the quality or the bent of each individual mind and without regard for the influence of fatigue upon intellectual work.

I believe parents should be enlightened and made aware of the nervous temperament of their offspring and thus be taught to guard against the dangers of overstudy. These truths should be impressed in some manner upon the minds of teachers who are anxious about their classes, so that they would not unduly work the brains of the young and highly neurotic children to the degree of disastrous consequences; for not unfrequently the teacher is the cause of the child's first step in the direction of the madhouse.

I have patients with chorea consult me year after year, who seem to be affected after the holidays and following their return to school, for what might be called recurrent chorea. I have treated many cases of hysteria among our high school girls just before or during examination time who were undoubtedly excited by the overstrain. All of these patients improved with very little medication, by being taken out of school. Now, it is surely the duty of the physician to protest against many of the unhealthful methods now in vogue in our modern educational curriculum. No doubt the time will come when a physician or a psycologist will be engaged to supervise the instruction of school children; but until this is done, or these difficulties be overcome in some such manner, I believe the teachers should be so instructed that they would be able to gather by some palpable signs (as great restlessness, for instance) the inadvisability of enforcing discipline liable to produce serious results. There is no doubt that many of the members present have had cases which might be termed schoolbred chorea; children who have been kept hard at work in spite of their great restlessness, the significance of which neither the parent nor the teacher understood, and who were allowed their freedom or taken from school only after the mischief had been done, and chorea had seized such a hold upon them that they were unable to control themselves. All this happens, moreover, at a time when beneficial treatment is much more difficult to prescribe.

I am convinced that teachers who have the best opportunities for watching these cases should be taught to observe and call to the attention of the parents at an early stage any significant defect in a child either mental or physical, so that early treatment may give the best results, for the earlier a correct diagnosis of hysteria and its allied complaints is made, the better the chances will be of treating the case with benefit.

With children more attention should be given to physical education and to laws of health and less to overloading the brain with a multitude of subjects, many of which will be of no earthly use in after life; school hours should be adjusted to the strength of the pupils and there should be frequent intervals during school hours for relaxation. "True education is to find the quality and bent of each pupil's mind and give the mind only such food as will develop it." More attention to the facts which pertain to the phenomena of fatigue in our schoolroom and the influence of fatigue upon the intellectual work of children will limit to a great extent the prevalence of the neurotic condition.

To briefly recapitulate in closing, I would suggest the following factors as of importance in the faulty methods of education of our school children:

(1) The neurotic condition is not properly recognized by teachers nor parents.

(2) Failure on the part of principals or superintendents of schools to recognize the different abilities, et cetera, of different scholars.

(3) Neglect of parents to study the mental peculiarities of their children enough to tell when the danger point is at hand.

(4) Finally the impossibility, under the present conditions of medical practice, of properly instructing parents and teachers in regard to the dangers which beset the neurotic child.

DIAGNOSIS OF CHRONIC CATARRH OF THE STOMACH.*

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The recognition of signs or symptoms by which one disease is distinguished from another is known as diagnosis. Every indication must be taken into consideration before we are able to determine the special form of disease. In the history of the practice of medicine therapeutics began as a practical art, but as rational therapeutics is rapidly supplanting empiricism a need for accurate diagnosis has become apparent. In fact those who were treating disease empirically realized that an exact knowledge of the disease was necessary to the application of an adequate therapeutics. The saving of unfortunate fellow creatures is the motive in administering to the sick, and no genial guess goes half so far as a scientific fact.

*Read before the Detroit Medical and Library Association.

In former days some persons were credited with special talent for curing the diseased, and the practice of medicine was relegated to the priests as one of their functions. They observed and studied the sick from an objective standpoint, and noticed in a large number of patients, certain resemblances as to the character and course of the disease. They observed also, that certain symptoms indicated a favorable and others an unfavorable development. Some drugs proved efficacious in certain diseases, while others that proved to be without effect were eventually excluded. In this way the first step was made toward the development of scientific diagnosis. A disease can be understood only when we have correct conception of disease in general. This latter depends, of course, upon the study of pathology and upon experience at the bedside, and cannot be acquired unless the physician is a careful observer and can differentiate between the essential and the nonessential manifestations. This diagnostic tact, as I might call it, can be acquired through industrious study.

The only correct way to assure ourselves of the form of the disease we come upon is to determine what the distinct phenomena in the disease are and to deduce the diagnosis from them. This method in diagnosis is preferable to all others, for it leads to greater certainty. At times we may select a few symptoms, and let our investigation proceed from them, and we may by this method, occasionally get results with considerable certainty, but in general it may be said that this method must be resorted to only in exceptional cases and with caution. A diagnosis should always proceed with a single-eyed regard to the unity of signs and symptoms. The analysis of disease is an equivalent to the discovery of their relative significance, and these the physician should know and be expert in all methods of investigation. Only if he controls the technique of the examination, can the diagnostician secure a firm basis upon which to form his diagnosis. An untrained eye cannot discover at once, though it regard the patient ever so sharply, such changes in him as are in contrast with health. In order that the essential points upon which everything depends be discriminated from the nonessential, even the eye of the physician must be clinically trained. I am glad to say that the influence of clinical methods in our colleges has enabled the practitioner to secure for himself a higher precision in diagnosis.

Chronic catarrh of the stomach is a very frequent disease and one of the most difficult to diagnose, though the literature of the etiology, pathology and therapeutics of it is very extensive. All seem to take for granted that a diagnosis can easily be made from such subjective symptoms as loss of appetite, excessive appetite, dry lips, pasty or salty taste in the mouth, belching of gas, nausea, gaping, sleepiness, sense of oppression, bloated up feeling or feeling of fullness and at times a feeling as if there were a great pressure in the epigastrium, sense of burning at the pit of the stomach, aversion to work, hypochondriacal symptoms, melancholia, dizziness and headache, constipation, scanty urine, furred tongue, shortness of breath, palpitation of the heart and a feeling that food stagnates in the stomach. This clinical history would equally apply to several gastric neuroses, to erosion, to ulcer and to carcinoma, which are difficult to differentiate. In all of these the gastric difficulties are frequently identical, or at least resemble one another. But even if we have made a diagnosis of chronic catarrh of the stomach by exclusion we cannot determine the special form of catarrh, namely, simple, acid, mucous and atrophic without a repeated microscopical and chemical examination of the stomach contents after a test breakfast. What physician would make a diagnosis of kidney lesion without an examination of the urine? Yet a diagnosis of chronic catarrh of the stomach is often made by reputable physicians in no other way than by exclusion. The diagnosis is not so easy as physicians formerly believed, and as some still suppose. I know of nothing so futile as to attempt to make a positive diagnosis of chronic catarrh of the stomach without an examination of the stomach contents. LEUBE has said: "We may content ourselves with the diagnosis of catarrh of the stomach when we can exclude with some certainty other chronic difficulties which are attended by gastric disturbances." But I may say that such a diagnosis would be of a negative character and therefore not sufficient, surely not in gastric ailments for we need positive indications for the ascertainment of a precise diagnosis, and by such a one alone can we discriminate a chronic catarrh of the stomach from affections which resemble it closely. The diagnosis cannot be assumed upon the ground of clinical symptoms alone, but can be arrived at only by an analysis of the gastric contents. The subjective symptoms, as well as those which are ascertained by the usual methods of examination, do not always present the characteristic phases of the ailment. Analogous phenomena might be observed in all other affections of the stomach. The most experienced physician, if he should depend upon clinical symptoms and the physical examination alone, might be deceived. The presence of masses of glairy mucus, however, in the stomach contents, and a decrease in the ferments are sure criteria.

By chronic catarrh is understood an inflammation of the mucous membrane of the stomach. The mucous membrane is the primary seat of disease, while the change in the muscular layer is secondary. We distinguish two forms of chronic catarrh, parenchymatous and interstitial, according to the respective tissue involved. The destruction of glandular parenchyma due to round cell infiltration and interstitial proliferation, prevents the full secretion of gastric juice. **Beaumont** taught from his experiences with Alexis Saint Martin, as far back as 1830, that the quantity and potency of the gastric juice are affected by the inflammatory condition of the gastric mucosa. In chronic catarrh we have degeneration of the glandular cells on the one hand, and connective tissue proliferation on the other. These destroy the function of the cells and lessen the secretion of the gastric juice. There are no mucous glands in the stomach, so that normally there should be no mucus present. When masses of glairy mucus are microscopically found in the gastric contents we have a sure indication of the presence of catarrh. When mucus is entirely absent there is not likely to be inflammation of the gastric mucosa.

In acute catarrh of the stomach there is an injury to the mucosa and a disturbance of the function of the cells of the glands. We may say that this occurs in a still higher degree in the case of chronic catarrh in which the change in the glandular cells is a permanent one. In chronic catarrh of the stomach we have a deficient formation of the gastric juice and the presence of mucus. Because of these, the ingesta are insufficiently digested and undergo fermentation and putrefaction. This can be met if the motility of the stomach is not involved, but experience shows that the musculature suffers in its energy through an inflammatory infiltration. An analysis of the stomach contents will determine this point by an examination with respect to the reduction of hydrochloric acid, pepsin, rennin, and abundant mixtures of mucus and the chemical examination of the ingesta for the putrefactive changes. This, along with subjective symptoms, gives us valuable data. When we have excluded a neurosis, the decrease in the secretion of gastric juice and the presence of glairy mucus are suggestive of catarrh. The secretion of hydrochloric acid is not typical of catarrh, for a diminution of this occurs also in neurosis. A varying degree of it, however, is surely indicative against catarrh, while the presence of increased quantities of mucus, both in the full or empty stomach, indicates chronic catarrh; so also does a noticeable reduction of the secretion of pepsin, and especially of rennin.

The various forms of catarrh can be proved only by an analytical examination of the gastric contents, and their differentiation requires a quantitative as well as a qualitative examination; in fact, this is the only way we can recognize simple chronic catarrh, chronic mucous catarrh, chronic atrophic catarrh, and chronic acid catarrh, respectively. In *simple chronic catarrh* we find, after a test breakfast, that the ferments pepsin and rennin, are decreased or present in smaller quantities than normal. Free hydrochloric acid is decreased or absent. Combined hydrochloric acid is present. Erythrodextrin is present. In *chronic mucous catarrh* we have the ferments pepsin and rennin absent, while the proenzymes, pepsinogen and rennin-zymogen are present. Free hydrochloric acid is absent. Combined hydrochloric acid is absent. Very much thick glairy, clear spring-water-like mucus is present. In *chronic atrophic catarrh* the ferments pepsin and rennin, the proenzymes, pepsinogen and rennin-zymogen are absent. Free and combined hydrochloric acid are absent. Milk will not curdle if left in the stomach for any length of time. In *chronic acid catarrh* pepsin and rennin are present in larger quantities than normal, hydrochloric acid is increased. Large quantities of mucus are present, which gives an acid reaction due to the hydrochloric acid. This gives the differentiation of the several forms of catarrh which cannot be determined without an analytical examination of the stomach contents after a test breakfast.

I have not addressed myself to the subject of the diagnosis or the differentiation of the several forms of neurosis, ulcer, erosion and carcinoma, which frequently manifest themselves by the same symptoms as chronic catarrh of the stomach, but in these also an examination after a test breakfast is absolutely necessary.

Empiricism in the practice of medicine is rapidly being replaced by rational medicine. Let us use all diagnostic methods we have at our command to ascertain just what we have to combat. In other words, an accurate diagnosis is necessary before our therapeutics can be of any avail. This is more true of diseases of the stomach than of any other. The stomach is a laboratory which prepares the food for absorption or for action upon it by the juices in the intestines. When we know what is taking place in the stomach it is a very simple matter to assist digestion in a rational way so that our patients will readily respond to the treatment which has a relevancy to their ailment.

32 ADAMS AVENUE WEST.

SOME CAUSATIVE FACTORS IN CERTAIN DISEASES OF WOMEN.*

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IN this short paper I do not intend to consider all the diseases that afflict women. My remarks will be confined to a certain class of symptoms that are produced by certain causes, and in time become diseases.

I understand there is a law in Michigan that prohibits the consumptive, the insane, the gonorrheic and the syphilitic from marrying. Effort is made to keep contagious and infectious diseases from spreading. Unsanitary conditions are fought as if they were the greatest bearers of evil. It is our solemn duty to prevent disease whenever possible, but I would ask, what is being done for the women who are living in our midst? Do we try to prevent their nervous systems from breaking down? Do we admonish them of imprudence during menstruation? Do we point out to them the evils of their mode of dressing? their neglect of outdoor exercise? the curse of marriage with men affected with genital disease? the incompetency of the midwife? No! Only after the woman comes to us broken in health do we recognize her condition and appreciate her position. There are today thousands of women in Detroit—and the number is rapidly increasing—with painful backs, versions and flexions of the uterus, painful menstruation, headache, constipation and anemia, yet who never complain, thinking that these ailments, if not too severe, are but a share of life's burden that they must bear.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

Why do women have these complaints? Nature did not intend that they should be thus afflicted. God placed all, as regards health, on an equal footing. Compare our women of today with those of ancient times, those of the uncivilized, those of the Indian, or the negress, who are the equal in health and power to man. It is a well known fact that the Indian squaw on the warpath stops only to give birth to her child, and then continues on her way. It is true these women also have female diseases, but they are not as prevalent; in contrast with our civilized people, I may say they are of exceeding rare occurrence.

It cannot be doubted that woman takes less exercise than man. She is by nature more prone to lead a sedentary life. There are women galore who for weeks do not walk one mile a day. They remain at home in unventilated rooms that contain cooked and stagnant air. Some are compelled to lead this abnormal life, but others lead it from choice. In this latter class may be placed the boarding school miss, who is subjected to the hardest and most difficult studies from morning until night, with but an hour or two for exercise which is taken within closed walls, and regulated by matrons. Other causative factors in disorders of women are our big stores and workshops. Doubtless in this city there are twenty stores that compel their women clerks to stand while on duty. They are not allowed to sit for fear of being reprimanded. This same condition prevails in our factories, where they are compelled to stand and work over benches from eight to ten hours daily. Their exercise is not the kind that is beneficial to health, for in order to be beneficial it must be exhilarating; there must be a complete relaxation of mind. The exercise must be a pleasure to the one taking it. It must be taken with a desire. It must not be forced.

In these women the menstruation becomes sluggish, the ovaries become congested, and the general appearance anemic.

Another great causative factor in diseases of women is the mode of dress. What sickness and trouble have style and fashion brought upon our helpmates. The young child at four or five years of age is compelled by an ignorant mother to wear her skirts strapped about her waist, the small waist jacket, that previously hung from the shoulders to support the lower garments, now being discarded. When the child becomes nine or ten years of age she is put into a corset waist, and the shaping for fashion begun, the appliance being from time to time made smaller. Often the next corset bought is a size or two smaller than the preceding one, and this squeezing process is continued until our young girl, not yet fifteen years of age, is laced so tightly that vital organs below must give way. Some weeks ago I read an item in one of the Detroit dailies giving the measurements of a perfectly-formed woman. The circumference of the waist was given as twenty-four inches and that of the thigh twenty-five inches. This article was published for the information of the ladies, who will doubtless try to bring themselves to that standard. Think of the thigh being ono inch larger than the waist! What an amount of pressure and crowding there must be exerted upon the tender organs by this pernicious invention. Surely the vital organs cannot be in their natural position. A woman visits the office of a physician asking for relief from flexion or version of the uterus. The doctor introduces a pessary but neglects to request the patient to remove her corset. Why a pessary is introduced with the expectation of correcting a displacement without first removing the cause is beyond comprehension. It is true, the patient will feel better, but only for a short time, when she will return complaining that she cannot wear the device on account of pain. No wonder it causes pain! Consider the vice-like condition the uterus is being put in; the corset crowding or pressing it down and the pessary pushing it up. Remove this pressure from above by ordering the patient to discard her corset and support her skirts from her shoulders. The diaphragm will then be relieved from crowding the intestines down upon the uterus and forcing it against the posterior wall of the vagina or pushing it into the lumen of this organ at an antero-posterior or lateral angle. In making examinations of the uterus resort is had to external pressure to force the organ into the vagina. The corset produces like effect and holds the uterus there from twelve to fourteen hours every day. A physician would not think of chloroforming a patient laced in a corset; he would not even think of resorting to the procedure while her skirts were buttoned because respiration would be jeopardized thereby. Now, if this garment interferes with respiration when the woman is unconscious, it certainly must act likewise when she is conscious. The surgeon observes the rise and fall of the uterus during respiration and often depends upon this guide in determining the mode of breathing: Normal respiration should not require muscular effort to accomplish expansion and contraction of the thorax. The elasticity of the lungs, aided by the diaphragm, will perform the function if the chest, especially at the base of the thorax, is entirely free. The corset continually holds the thoracic and abdominal muscles at rest, so that after a number of years, women who remove their corsets before retiring are obliged to replace them the first thing in the morning, as they are not comfortable without them. The muscles have become useless, the corset having taken their place. These women are half paralyzed and have but little physical power left. The corset not only impairs the abdominal and thoracic respiration but the power of the abdominal muscles to retain the pelvic viscera as well, and thus allows the influence of gravitation to cause displacement. The weakened and displaced uterus of the young woman is thereby prevented from growing symmetrically. The fundus is forced upon the cervix, allowing one side to grow more rapidly than the other, and when puberty announces the menstrual molimen the flow is prevented by closure of the cervical canal. This displacement of the uterus is formal invitation for disease to these parts. The cervix being forced into the posterior cul-de-sac, is constantly brought in contact with the penis in sexual intercourse, thus causing direct injury to the parts. This complaint emanates from newly married women who are unaccustomed to exercise, thus proving that the condition is not caused by labor but by lacing.

Disorders of circulation are also produced by displacement of the uterus, causing passive congestion, and its resulting hypertrophy prevents the free escape of blood by the os pressing against the vagina, creates flexion, friction of the cervix against the floor of the vagina, and destroys the power of the uterine ligaments.

Imprudence during and after parturition is also a cause of disease. As soon as pregnation has taken place the uterus begins to enlarge to accomodate its contents. The multiplication of fibre cells is rapidly proceeding, so that within three months the enlarged uterus can be perceived through the abdominal wall. Notwithstanding the perceptibility of this enlargement the woman still continues to wear the same size corset that has been her habit. She even laces tighter in order that her lay friends may not know her condition. Is it any wonder that abortions are numerous? that the uterus is unable to produce strong contractions in labor? or that different positions present? Fiber cells form equally throughout the uterus to fortify it for this trying ordeal. Nature gives us no weak spots to contend with. This extreme pressure from lacing, however, exerted upon the fundus, must certainly prevent, to a certain extent, the uterus from becoming as strong as it would were all hindrance removed. There is no doubt in my mind that this pressure is a great cause of subinvolution, for it cannot be disputed that the uterus is thereby prevented from attaining its natural growth.

Bandaging a patient in confinement is another wrong that is often permitted. I do not deny that the procedure is a comfort to the woman, but it is often overdone. The bandage is pulled around an enlarged and heavy uterus not so much for the purpose of affording the parturient comfort as for preserving her shape. The bandage is worn constantly for two or three weeks, thus forcing the uterus back into the sacrum and again causing displacement. I do not think that bandaging will prevent postpartem hemorrhage or cause contraction. Besides, the patient is often allowed to leave the bed too early. It has become the custom for her to look forward to the ninth day as the one when she may rise. This is a liberty that should not be allowed without a thorough examination. Too often after the third or fourth day, a patient is placed in charge of the nurse or relatives or some neighbor woman, and told that if any untoward symptom should arise to summon the physician. She is too often permitted to be the judge as to whether she is in a favorable condition to abandon the bed. She is too often the subject of a lacerated cervix, or a tear in the perineum, that the physician attempts to heal by strapping the limbs together, a procedure that only makes a harbor for the lochial discharge. Several months later it will be learned that the patient has engaged some gynecologist to repair, after perhaps long treatment, what the accoucheur negligently overlooked. It is but small discharge of a physician's duty to tell a patient, who pays him to guide her safely through this trying ordeal, that he will call again in a few days to ascertain her physical condition.

TRANSACTIONS.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, NOVEMBER 13, 1899.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR THEODORE A. McGRAW read a paper on "The Education of the Laity in Medicine." (See page 169.)

DOCTOR CARSTENS: Many of the views expressed by **DOCTOR McGRAW** are held by all of us. The extreme view taken could not be sanctioned. There are undoubtedly certain things which the public ought to understand that are applicable to the conditions of life of all classes. Take, for instance, the subject of contagion and the question of germs. It is good for the people to know about these matters. The doctor makes the point that certain facts of this nature are already understood by the people. That is true, but there are certain other facts about which the laity do not know, and the members of the medical profession should instruct them. If we can show the public (as was done in Hamburg by demonstrating that the water of the Elbe contained the germ of cholera and that the drinking of that water unboiled would produce cholera) that typhoid fever is caused by contaminated water, and that this contaminated water comes from small creeks which drain larger or smaller areas of territory, and should be boiled, certainly people will be very careful about drinking that water. If we can show the farmers that the wells, in many cases, are the cause of typhoid fever, and that if the water is boiled they will not contract the disease, certainly they will heed the admonition. If we can show the public that it is the bite of the mosquito that causes malaria, certainly they will observe every precaution to prevent it. A little knowledge, and especially in physiology, is a dangerous thing. The point that the doctor makes about this little knowledge is a good one. We are continually meeting people who assume a knowledge of medicine, and it becomes our province to instruct them aright upon various medical subjects.

PROFESSOR J. H. BEAZELL, of the Central High School: I have considerable hesitation in arising to say anything on this question. I do want to say, however, that I have been very much pleased with the paper. The thoughts contained therein should find a lodging place in the minds of those who have to train children in our public schools. I would differ, however, or at least call attention to the remarks of DOCTOR CARSTENS. It is impossible to teach physiology in a scientific manner such as was hinted at in the paper, yet it is true that it is possible to bring to the attention of boys and girls many facts that will be of advantage to them, for instance, such as how to prevent contagious disease. Another point has reference to the foods, and the different parts of the body that different foods tend to build up. Children may learn these things with advantage. There are very many matters which, though not scientific, may be taught children, and which may prove valuable to them in the conduct of their lives. If this information is not given to them in the public schools they will probably never get it at all.

PROFESSOR HALL, of the Western High School: I have very little to add. I am glad I heard the paper, but rather than question the statements therein made the thought has arisen in my mind, What are we teachers to do in the premises? The law requires the subject to be taught and the board of education has placed it in the curriculum of study. Now, shall we go home tomorrow, MR. BEAZELL and myself, and say to our students, this is all useless; do not study it at all. It is not well to learn anything unless you learn it in a scientific way, and the younger children have very little idea of what we mean by scientific instruction. I do not say this in a spirit of criticism; it is rather in a spirit of questioning. What would these physicians advise us to do in the premises? They are certainly interested in the lives of the young children and what is best for their future good.

DOCTOR CARRIER: I agree with DOCTOR MCGRAW's paper in many respects. It seems to me, however, we might draw conclusions therefrom that are erroneous, for instance, the harm that is being done by too little education. How are we to gauge the good that is being done. We take only one side into consideration, and enlarge upon the bad effects, not being so ready to see the good. Again, the literature the doctor refers to is a horrible thing. However, since we cannot prevent the circulation of that kind of literature it should not be held up as a reason for not teaching young men and women at least some of the facts connected with anatomy and physiology. I can see the difficulty of teaching either in the public schools, still there is a certain amount of knowledge thereof which would be of advantage to the child. Ignorance of anatomy, even among educated people is common. As an illustration I might mention the case of a lady who came to me with her son who suffered from what she stated was a cancer of the umbilicus. I examined him and afterward removed a plug of sebaceous matter. I asked her why she had not washed it out, and she replied that she did not know anything about the condition and was afraid to meddle with it.

DOCTOR CONNOR: In connection with you all I have been very much interested in the study of the paper which DOCTOR MCGRAW has presented to us this evening. We have noted with regret that the doctor has placed before us the difficulties but did not enter upon a discussion of the solution of these difficulties, nor did he pretend to cover the whole field. He has presented to us faithfully and forcibly difficulties that we all have met in more or less degree. I could wish that at some early date he might prepare a paper giving the other phase, that is, means for the practical solution of this question. Certain it is that children, as they grow up to adult life, will gain some knowledge of their bodies. This cannot be prevented. If they do not get it from those who are intelligent and clean and scientific they will get it from those who are ignorant and vicious and venal. As long ago as when I was a little fellow in the district school I remember, from one page and another, questions that were given in hygiene and physiology, and it has been from that day to this a means of helpfulness in my mode of life, helpfulness that has been very emphatic both in preventing evil and getting away from it when near the border line. I have known, as a student, the same thing to happen to other boys associated with myself. So that, to my mind, we all must acknowledge that there is some helpful knowledge which may be given to the young, and the question arises, What shall it be, who shall give it, and when shall they give it? This thought I have very firmly in my mind—that upon that knowledge acquired by the young and the old among the laity, more than upon anything else, depends the progress of the profession to which we belong. Until that knowledge exists we will not be appreciated, nor will we be sought or trusted as we ought to be sought and trusted. I have one hopeful line of thought, and that is the work being done by our health boards, both local and state. I think that field may be cultivated very largely with great profit to all of us. I quite agree with the thought that knowledge does not make practice with everybody but it does with many, and I think with more than many of us are inclined to credit.

DOCTOR SHERMAN: I think we fail to recognize the fact in a discussion on public education on medical subjects that education as a whole is in its infancy. It is only about a hundred years ago that public education became anywhere general. Public education has made rapid strides forward, and I can see in the not far distant future the time when the average child will get as good instruction in physiology as the average practitioner of today obtains. There are certain things that the laity can learn and understand, and when these facts are brought before them in the proper way they can make use of them. There is one line of thought in the education of the public to which I have given especial attention; that is alcohol, and it is surprising how little the laity practically know about it. In particular they believe that because wine is made from grapes it has all the nutrient qualities that grapes have; and so on, with barley, et cetera. The laity should know about these things, and the public school is the proper place to teach them. As DOCTOR CARRIER says, we see the bad effects of partial public education but are not so apt to see the good effects. When each individual shall be obliged to continue his education to the eighteenth year then, and only then, will we have a public education that will be scientific and of real value.

DOCTOR AMBERG: Regarding the advisability of educating the laity in medical matters, I think education in hygiene is of very great importance. It seems to me that in teaching physiology in the schools the moral side cannot very well be separated from the so-called scientific side. The pupil will draw his conclusions and why should they not be directed into a healthy channel? The doctor says that knowledge of the detrimental effects of venereal diseases does not prevent people from acquiring them, and quotes medical students as examples. Notwithstanding this statement I am inclined to think that a good many medical students are influenced by a knowledge of the consequences attending the contraction of these diseases. In regard to the fact that physicians furnish a large percentage of the victims of the cocain and morphin habit in spite of their knowledge, I have in mind another reason, namely, a physician can get possession of the drugs much more easily than a layman can. I think that a knowledge of the bad effects produced by alcohol influences many a man in a commendable way. Furthermore, I think that the literature the doctor speaks of would not have the same evil effect on the readers if the readers had a working knowledge of the subject. They would then be better able to judge of the contents of these books. Besides this, I think that people, if they were educated in physiology and hygiene, would not be so likely to fall into the hands of quacks, palmists, Christian scientists, et cetera. Neither would they lay obstacles in the way of sound medical laws.

DOCTOR GURD: I quite agree with the principles set forth in the paper. I believe that the public should be educated in medical matters, but do not think that the public school is the proper place to impart instruction along that line. In the first place, What is the idea of education? It is to train the mind and educate it to study in later life. I think any subject that can be taught as a very thorough drill is what will benefit the child. I had hoped that the time might come when the physician would be employed to teach the people—not to cure disease. I think very much can be accomplished in this direction by instructing the mothers of growing children, and also by the father.

Doctor McGraw: I learned soon after I began to write this paper that it would require a volume, and that I would have to inform myself better about certain facts. I came to the conclusion very early on one point, and that is that it would not be wise at the present time to invade the schools, for example, here in Detroit, and criticise the method employed in teaching anatomy and physiology, for the reason that the conduct of these studies in the schools would depend on circumstances over which teachers would have no control. Instead of making an exhaustive paper I thought it would be better to make a suggestive paper to elicit discussion and thought. I do not claim to have made anything exhaustive in my paper. I am confident, however, in my own mind what would be best. It has seemed to me that the whole investigation ought to be made on scientific grounds and not on philanthropic grounds. One teacher asks the question, Should he teach the children in his school on scientific grounds? I do not think that is necessary. The thing to teach them is, What is science? It is common sense. That is the very essence of science. He can teach them that.

STATED MEETING, JANUARY 22, 1900.

The President, CARL BONNING, M. D., in the Chair.
Reported by P. C. McEWEN, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Charles D. Aaron read a paper entitled "The Diagnosis of Chronic Catarrh of the Stomach." (See page 190.)

Doctor Donald: I have listened to the essayist with a great deal of pleasure, because the paper is along the line of advancement in medicine. In looking over the field of medicine it seems to me that the advancement along the line of stomachic diagnosis, prognosis and treatment has been so marked during the last two decades that the stricture which is laid upon the department of medicine by some gentlemen who affect the province of surgery—that medicine has made no advances in the last two decades—seems to me to be unwarranted. While surgery may have made advances, if we will review the ground covered by internal medicine in the last twenty-five years it will be seen that in stomachic diseases that branch has made advances which are wonderful in every respect. Of course, the ground which Doctor Aaron has covered in his paper includes but a small portion of internal medicine, particularly in the domain of diseases of the stomach, yet it covers a ground over which many of our patients travel; and while concurring with him that to make a correct diagnosis of the varieties and subvarieties of this lesion it is absolutely necessary that we should resort to withdrawal of the stomach contents for examination, as general practitioners we find it impossible to secure such an examination from many of our patients. If the physical condition of patients does not improve and they feel obliged to consult a specialist they are willing, no doubt, to submit to any procedure he may decide to adopt. In lecturing on internal medicine, I am in the habit of telling my students that the average practitioner should be able to make a diagnosis of the different varieties of stomachic disease without the withdrawal of the stomach contents. There are cases, of course, wherein such a course is positively indicated, and wherein a correct and clear diagnosis is unqualifiedly impossible without resort to such procedure. With the fine means of diagnosis and treatment available we are apt to fall into the habit of neglecting the old clinical methods by exclusion, and the subjective symptoms of the patient, resolving the whole question into withdrawal of the stomach contents and basing our diagnosis upon them. I am quite in sympathy with the advance along these lines of stomachic treatment and diagnosis, but I do often feel that I want to take exception to a few of the follies, as I consider them, of the writers upon stomachic diseases, and particularly to the folly which I think exists in the desire to increase the subdivisions of stomachic disease, and not only the subdivisions but the names. We are simply on the borderland, however, of stomachic diagnosis and treatment, and undoubtedly there lies beyond a field which in the next two decades will be explored to an extent that will advance medicine very much farther than it is today.

Doctor Samuel Bell: I am chiefly interested in the paper on account of being a sufferer from stomachic trouble for some time myself. During the past two years, while medical superintendent of the Upper Peninsula Hospital for the Insane, my stomach caused me considerable trouble, and I had to institute such means of diagnosis as are more than ordinarily employed before I could arrive at any conclusion as to the nature of the particular disorder. After an analytical examination I found the diagnosis somewhat different from that previously made from symptoms present, and after treatment had been instituted along the lines indicated by the analysis I found myself on the road to ultimate recovery. I was then stimulated to make analytical examinations of the stomachic contents of those suffering from melancholia. These examinations were made in about twenty cases in different forms and states of melancholia. Invariably the result of the examination somewhat changed the diagnosis. It is pretty well understood that persons affected with melancholia, in fact all forms of insanity, suffer from gastric and intestinal derangements. There is generally a deficiency of gastric juice in all forms of melancholia, but in some of the cases examined there was present a normal amount of this digestant. There was hyperchlorhydria in quite a number and in others a deficiency of hydrochloric acid. We had recourse to the method of analysis recommended by Einhorn. The results of the experiments were that we instituted a different line of treatment and had much better results therefrom.

Doctor McGraw: It seems that any measure which will make diagnosis more accurate must in the end be an aid to practice in all lines of medicine, and therefore the more thorough we are with our patients the better eventually will it be for our patients. While listening to the paper I was seized with the desire to express one thought, namely, in the diagnosis of diseases of the stomach we have not only to diagnosticate the conditions we find in the stomach itself, but also, as a part of that diagnosis, the conditions in other organs which influence the stomach. I especially had that in mind tonight because within the last few days I have been reading a paper in the *Berliner Klinische Wochenschrift*, by **Professor Klebs** in which he speaks, in considering the subject of tuberculosis, of some peculiar conditions that are found as a result of the absorption of tubercular ptomains, which I had never seen published before. One of those conditions is, that as a consequence of the absorption of tubercular ptomains, there results an achylia gastrica, which can be very much improved by the administration of the extract of thyroid gland. He recounts some experiments on dogs. Injecting the tubercular ptomains into the dogs has caused an atrophy of the thyroid and disturbances of the stomach. These conditions are cured in the animals by giving the thyroid extract. In other words, in these cases it is necessary to proceed outside of the stomach itself to organs which influence the stomach. In order to make a correct diagnosis the stomachic contents should not only be examined but the examination oftentimes should include every organ in the human body.

Doctor Robbins: The idea that was most prominant in my mind as I listened to the paper, is the relation of the specialist to the general practitioner. It seems to me that in these lines the specialist is a great aid to the general practitioner in more ways than one, but especially by proving to the people and the profession that special lines of research are followed with special advantage in the methods of treatment and cure of disease. The reaction is favorable to the profession at large and assists the general practitioner in ways that had not occurred to him and gives a greater scientific impetus to all general practitioners. The specialist renders valuable service occasionally in the more chronic cases.

Doctor F. B. Walker: It is interesting to me to hear the paper read and listen to the discussion, because there is a great contrast in it to what I heard a few years ago. Not many years ago I read a paper before this association and a number of prominent gentlemen were present and discussed it. I remember one remark, namely, that the method of using a stomach tube was rather Turkish, and others expressed themselves in the same ironical manner. One gentleman gave a formula that he usually prescribed for his stomach cases and stated that it usually cured them. That same evening it occurred to me, and I have thought about it many times since, that although those gentlemen were so confident of their cures, it was certain that they did not cure their patients, for I had some of them under treatment at that time, and while I do not express myself with any great assurance as to my results, nevertheless some of them had been under treatment by some who were present and spoke that evening. Under our ordinary methods our patients are not permanently benefited, and unless correct diagnoses of the sort referred to in the paper are made and treatment directed accordingly we cannot hope to have much better results.

DOCTOR GEORGE CAMPBELL: I am sorry that DOCTOR AARON did not speak of the treatment. While it is important to make a correct diagnosis the treatment is of much more importance. As DOCTOR McGRAW has said, we frequently cannot find a disorder which is apparently reflected from the stomach seated in the stomach itself. So many organs are connected with the stomach that we have to seek elsewhere than in the stomach for these troubles. They are closely connected with the nervous system. We have also to look to the patient's occupation, habits, et cetera.

DOCTOR AARON: I am very much pleased with the discussion of my paper. I must say, however, that I cannot agree with DOCTOR DONALD when he says that we should wait until we meet cases that are obstinate before we apply these methods of diagnosis. The longer the general practitioner waits the more obstinate the condition will be. The sooner a correct diagnosis is made the fewer patients will the specialist get. Gastro-enterologists divide chronic stomachic catarrh into four classes. Each class has its own therapeutics. Now how can we treat chronic catarrh unless we have an accurate diagnosis? DOCTOR BELL's own case proves that it is impossible. It has been said that it is not necessary to make a correct diagnosis because we have a disease which does not kill. It does not kill like typhoid fever or pneumonia, but patients suffering from gastric disorders often wish they were dead. In the case related by DOCTOR McGRAW, would DOCTOR KLEBS have known that he had a case of achylia gastrica without an analysis of the stomach contents? It was necessary before he proceeded to demonstrate the utility of thyroid extract to penetrate deeper into the case than we are in the habit of doing. I did not enter into the etiology. A disease of any organ of the body can cause chronic catarrh of the stomach. Neither did I take up the treatment of these cases as referred to by DOCTOR CAMPBELL, because that can be obtained from books. It is impossible, however, to determine a line of treatment if we ignore the diagnosis.

STATED MEETING, FEBRUARY 5, 1900.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR D. L. WALMSLEY read a paper entitled "The Nature and Treatment of Influenza." (See page 182.)

DOCTOR DELOS L. PARKER: The subject of influenza is one about which physicians cannot learn too much. The disease has come to be a matter not only interesting to Detroit and the United States, but one of interest to all nations as well. I read the other day some statistics giving an account of modern wars and the number of people that had been lost. Alongside of these were given the results from influenza, and the deaths resulting from war were insignificant compared to those resulting from this disease. The doctor, in his paper, has called attention to the catarrhal form of the disease. I fully agree with him that during the past year or two the catarrhal form has prevailed, yet we get the other forms much more frequently—the nervous and gastro-intestinal. As to the cause of the disease, the germ of PFEIFFER, discovered about 1892, has been accepted by a great many investigators as the direct factor. The discovery of the bacillus, however, has had no effect upon the treatment. It is as yet empirical. If the cause can be absolutely determined it is possible some form of protective influence may be brought about. With regard to the treatment of the disease, what might be called the hygienic and medicinal plans are supported. For my own part I think the hygienic treatment is the most satisfactory, and I think observation on the part of all of us will bear me out in this statement. Keep the patient away from all drafts. This is true of all forms of the disease, whether of the catarrhal, nervous, or gastro-intestinal type. As regards the medicinal treatment, in administering calomel the doctor says he gives from three to five grain doses. I think just as good an effect is obtained from one grain of calomel as from larger doses. He also advises giving quinine in capsule every three or four hours. I prefer giving it in solution from half an hour to an hour and a half after food is ingested, so as to get the effect of the acid condition of the stomach. In regard to complications attending the disease, of course, their name is legion. The best way to escape the complications is to keep the patient warm and in an even temperature. When the complications arise, however, they are to be treated according to the symptoms which present. Before closing I want to emphasize the importance of keeping the patient housed in a warm and even temperature, and of observing this precaution for a considerable length of time afterward.

DOCTOR McKEAN: The cause of the disease seems to be pretty well demonstrated to be the bacillus of PFEIFFER. The symptoms of the disease are widespread. We are apt to run astray in our diagnosis of la grippe. I think la grippe has gotten to be as fashionable a disease as malaria was a few years ago. We should make no diagnosis of la grippe until we have thrown every other condition aside. In regard to the treatment, we all have our favorite line. I have become averse to using coal-tar products so largely. Since the aim of treatment is to shorten the disease, I believe the fever can be reduced with aconite, or aconitine and veratrum viride, much more readily than with the coal-tar derivatives. I support the heart with strychnine, and if the pulse shows signs of weakening, I drop the aconite and administer digitalis. For the relief of pain I give ammonol or some of the other coal-tar products, and if these do not avail I resort to morphine. With this management of la grippe I am happy to say I have had very few complications. Of course, hygienic measures are fully as important. I see very little use for physic. A few broken doses of calomel, perhaps, will be sufficient. In convalescence the best treatment is to keep the patient housed. I do not give quinine except in the convalescent stage, after meals. I think strychnine is better. No cerebral congestion follows.

DOCTOR EUGENE SMITH: One of the complications of influenza which stand out very prominently, and the last to arise, more particularly speaking, is suppurative otitis media with disease of the mastoid, and ought, I think, to be more thoroughly considered by practitioners. Some nine or ten years ago when la grippe invaded the country to great extent, I think about twenty operations for mastoid troubles were made. In 1897 there were one hundred and sixty odd operations. During the past year I have made nineteen operations for mastoid troubles, and in more than fifty per cent. the disease followed la grippe. That speaks for the dangers arising from one of the complications. Mastoid troubles and sympathetic ear troubles are very common with la grippe. Not all of them, I am happy to say, are mastoid cases. Mastoid abscesses have followed la grippe through the ear complications. The nervous phase of it, in the form of deafness, is also well known. Hence I think it were well in the treatment of these cases to bear in mind the possibilities of ear complications, and treat them as they arise. Treat them promptly, not waiting until la grippe is cured and the patient convalescent and then hand them over to the aurist. There is no reason why general practitioners should not treat these complications the same as they treat la grippe in general, and thus prevent so large a proportion of mastoid cases.

Doctor Anderson: Along the line upon which **Doctor Smith** has spoken, I have seen a great many cases of cough and throat trouble following influenza at my clinic at Harper Hospital. A large number of patients give la grippe as an etiologic factor of the trouble. The trouble, as I have seen it in these cases, is in making a diagnosis. If one examines the throat and nose very carefully they will usually observe some cause for the trouble. It may be a slight lateral deviation of the nasal septum, or a hypertrophy of the lymphoid tissue, and if treated the cough very promptly disappears. Or, again, it may be a hypertrophy of the follicles at the base of the tongue or a hypertrophy of the posterior ends of the turbinals. Sometimes, however, it may be due to a more serious condition in the lungs, such as chronic bronchitis or a commencing tuberculosis.

Doctor Herz: Generally influenza is said to be a disease of our time, but **Doctor Holetschek**, of Vienna, has shown that at the end of the sixteenth and the beginning of the seventeenth century an epidemic spread in the northern part of Europe which, from the description given, can have been nothing else but influenza. The communication is not to the medical department, but to the astronomical department. At that time the epidemic had been ascribed to the appearance of a big comet which preceded the epidemic, therefore, the matter has not come to the knowledge of physicians.

Doctor Chapoton: I believe the whole medical profession is pretty well decided that in ordinary cases of influenza no treatment is better than simply keeping the patient in the house. If I had my choice of treating a patient with medicine, or of having him remain in the house without any medication, I would elect the latter. Even the laity has learned that much about it, and consequently remain indoor. I would like to have a little light thrown upon those cases of catarrhal pneumonia which present themselves in patients suffering from influenza when every precaution has been taken, and which do not by any means resemble in symptoms catarrhal pneumonia, or the pure frank croupous pneumonia. One examines a patient and finds a large zone where there is no crepitant rale or decided consolidation, but a decided vasomotor paralysis has taken place in that locality, and that particular portion of tissue feels as if filled with thick exudate of some kind or another. In keeping with that condition we may not have any great increase of temperature, but we notice almost immediately a more marked failure of the heart's action than there was during the preceding days. The peculiarity about these regions or localizations of the disease is that they will advance gradually without apparent crepitation in the parts, so that within a few hours, or a day or two days, the process has extended over the lower lobe, and up perhaps to the very apex of the lung. Personally, I have had no better success with any remedy in the treatment of this condition that with fly blisters applied to the particular portion of the lung in which this process has appeared, and to sustain the heart I give strychnine and whiskey. Digitalis does not give us the same help as under other circumstances, and we have to place our hope in strychnine and spirits more than in any other remedies.

Doctor Hislop: I do not agree with the doctor in giving large doses of calomel. I think that the gastro-intestinal type of this disease is very irritating, and the bowels can be better cleaned out with enemata than by cathartics. The housing of the patient is always necessary, and next of importance comes diet. I think patients are overfed in this disease. The diet should be simple and nutritious, milk for instance, not too many stimulating remedies at first, but rather a more liquid diet. If the temperature should rise the application frequently of lukewarm water, or colder if necessary, is found useful. The doctor did not speak very much about the gastro-intestinal disorders that arise. By giving the patient purgatives we would probably run the risk of inciting trouble in the bowels. The last speaker referred to the pneumonic symptoms. When these arise I have found warm turpentine stupes very useful. I have not had the experience or necessity of putting on a blister. Bearing in mind the debilitating condition accompanying and following the disease, we should be careful in giving much of the coal-tar preparations. I give phenacetin combined with codein and quinin. If the nasal mucous membrane is very much congested, I apply a four per cent. solution of cocain as a spray, administering it myself.

Doctor Wagner: I wish to call attention to one point not mentioned tonight, and that is the liability of pregnant women to abort. One authority gives a report of one hundred cases of influenza occurring in pregnancy, in which fourteen per cent. aborted.

Doctor Walmsley: I thank the gentlemen for the kind reception of my paper. I purposely avoided referring to different kinds of treatment hoping they would come out in the discussion, and they have. As stated I use acetanilid and salol, but very carefully. I also elect stimulants in the beginning of the disease. With all due respect to Doctor Parker, I think small doses of quinine have never been followed by any bad effects when given in pill form. It is a good policy to clear out the primæ viæ in all conditions of sickness. I do no think enemata are of very much value other than to unload the lower end of the bowel. I am very partial to giving strychnine after my patient has recovered from la grippe. It is one of the best tonics we have.

DETROIT ACADEMY OF MEDICINE.

STATED MEETING, JANUARY 23, 1900.

THE PRESIDENT, GEORGE DUFFIELD, M. D., IN THE CHAIR.
REPORTED BY H. D. JENKS, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR ARTHUR D. HOLMES read a paper entitled "Faulty Methods of Education as a Cause of Neuroses in Children." (See page 187.)

DOCTOR WADSWORTH WARREN: I have been pleased with the thoughtful paper because it makes us think. A good deal of what was said is true, but it is a pessimistic view. The school system is of long standing and the result of long experience. It is adapted to the average child, yet when a system is adapted to a large number, certain ones will have to drop out. I do not believe the increase of the neurotic tendency is greater proportionately than among adults. For the great majority of children between eight and fourteen years confinement in schools is better than outdoor playing. I do not believe in the kindergarten system for the sooner the child learns the hard things in life the sooner it will rely on itself.

DOCTOR GIBBES: The paper seems much to the point. Children are being forced beyond what they can stand. The fault is in the examinations, where one is put against another. The children have no stamina left. In a long experience in teaching medical students I find the chief aim of the student is to pass the examinations and then forget what was stuffed into him. This driving at high pressure is one of the causes why we have neurotics. Outdoor work is better for them.

DOCTOR EMERSON: The whole question is, What constitutes an education? Is it the collection of facts only or is it the development of character? Education is to fit for work and all agree that the methods of the public school are not adapted to these ends. The cerebral functions should be developed in all their parts. At present it is the intellectual side only that is called into action, not the motor side. The Germans develop the motor side as well as the intellectual, by manual training or motor cerebral training. In this country we get a one-sided training. The active athlete makes up for this outside the school but the delicate boy does not. I should disagree with the paper. There is none too much study if study can be relieved by calling into play the other factors. Develop both sides, and this will mean a change in the present school system.

DOCTOR COLLINS: This subject needs thinking about in treating school children, especially girls at about the age of puberty. The boys get along pretty well as their development is slower. Examinations are a race. School girls are highly developed, by their studies, their music, and other things. They are overdeveloped, and this is the penalty of civilization. Their generative organs are deficient in development and they graduate as physical wrecks. The remedy for this is hard to get at. The child should be taken from competitive examinations when signs of neurotic condition appear. The girl, who usually is about two years in advance of the boy, should be kept out of school during the age of twelve to fourteen until the functions are established. When there is an enlarged thyroid, an irritable heart, et cetera, the girl must be allowed to have a different course. She should be from twenty to twenty-three when she gets through school.

DOCTOR CHITTICK: The trouble is not with the teachers but with those who compel the teachers of one school to keep her scholars up to the standard of another. It is really in the immense amount of work put on the scholars. Each teacher has about fifty scholars, and the best teachers are put in the lower grades, yet the teachers get nervous prostration from the amount of work they are required to do. The superintendent must have tact and ability, and not be a politician.

DOCTOR MAIRE: The paper agrees with my ideas. The teachers suffer more than the pupils for they cannot do justice to so many pupils. The public schools should teach children so that they can earn their living. We ought to eliminate the college idea from our grammar schools. The idea of fostering the University should be abandoned. We should pay attention to the teachers and they should be required to look after the weak ones.

DOCTOR F. B. WALKER: By this time many diverse ideas have been given. I am in favor of the university idea and the excellency of the school system does not need to be lost by it either. I am not sure that girls are more susceptible to harm than boys. In a public school we must have a standard course; there cannot be several different schemes for the bright and dull students, yet individual cases should be considered. Weak bodies should be considered by the parents, by the teachers, and by the school board.

DOCTOR INGLIS: I am delighted to have the paper before us but it will not come to any head because the public is not educated by such meetings. The teachers dare not criticize any of the methods of the schools, through fear. The age of puberty in girls is a critical time. If the teacher has a class of fifty pupils she should have half of them in the morning and half in the afternoon, and better results have been obtained by this method than by the old way.

DOCTOR HITCHCOCK: The paper has a heavy border and I think could have been made less black. I do not doubt that there are faulty methods and that they do make neuroses, but the starting point is in the home. I take issue in regard to the kindergarten system. The factors of this system are necessary in education for the system tends to develop the motor, the moral and the mental side. There should be a plea for the study of the individual in the school. Teaching is a profession and it ought to have careful training. The best teachers are those who study the individual. The examinations should be as light as possible.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, NOVEMBER 16, 1899.

THE PRESIDENT, GEORGE A. KIRKER, M. D., IN THE CHAIR.
REPORTED BY WALTER J. CREE, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR OTTO T. TOEPEL read a paper entitled "Some Causative Factors in Certain Diseases of Women." See page 194.)

DOCTOR STEVENS: The subject is entitled to a great deal of thought and consideration. The doctor has spoken about the formative period of life in the young girl. Shop girls and school girls who, from necessity, are a good deal indoors, should have plenty of exercise. I believe that the school system gives too much attention to mental at the expense of physical development. School discipline is not good. In the schools at the command "attention" the pupil has to sit erect with the hands folded in front, and this position is very tiresome. Shop girls should be allowed to sit when the necessities of business do not demand that they stand.

DOCTOR G. G. GORDON: Physicians do not have the opportunity of advising women how to prevent disease, as they usually seek medical aid only when they are sick. Employers cannot always be blamed for having the girls stand in the stores as the customers, especially ladies, object to their sitting. They do not like to enter a store and see the clerks sitting around and apparently not ready to wait on them.

DOCTOR MULHERON: The paper bristles with points, in fact too many of them, and I wish the author had limited his subject somewhat. Had I time many statements made by the essayist might be objected to. I do not believe in advising the laity too much in regard to the prevention of disease. There is too much of this done and no recompense for the physician, and besides, what is had for nothing is not appreciated. I do not think the American woman is inferior physically to her sister in any other race. In Vienna last year, in a series of cases coming to my notice in a lying-in hospital, sixty-five per cent. were deformed in some respect. I think that underfeeding, lack of sanitation and overwork are more important factors in the production of disease than the fashions of dress. Simple lacing will not produce uterine displacement, and women will be fashionable.

DOCTOR O'DONNELL: It is said that women dress to please the men, and it has occurred to me that if the men did not admire a tightly-laced woman the custom would soon become unpopular.

DOCTOR BACON: It is questionable whether tight lacing will produce uterine displacement. Corsets are not at the present time laced tightly. One of the principal factors, I believe, is the lack of proper exercise in women. Women and girls require a certain amount of exercise to keep the functions of the body in good condition.

DOCTOR KESTELL: We deprive the growing child of the proper food necessary for its growth. We deprive them of the phosphates, et cetera. Each physician should make a study of dietetics, and thereby, to an extent, prevent disease.

Doctor Henderson: One fashion that has not been mentioned is that of abortion. I believe that this is the most frequent cause of disease in women.

Doctor Toepel: When advising certain women patients we should remember that although they are not married they may be some day, and they can then give their children the benefit of our teaching. I think the law requires that chairs shall be furnished to clerks in stores, but some of the employers will not allow them to be used.

EDITORIAL ARTICLES.

SURGICAL HEMOSTASIS.

The ligation of vessels bleeding in ordinary wounds has been done since the time of Galen, but this method was probably used in amputation-wounds first by Ambroise Paré, who for it discarded the cruel and cumbersome hot irons so common in his day. Under his cunning eye and in his skillful hand the ligature proved so satisfactory that he believed further excellence impossible. However, the discoveries of anesthetics and antiseptics have already discredited his opinion with regard to progress in general, and even the ligature, of which he so proudly boasted, bids fair to fall into respectable neglect.

Catgut and silk, the two prevailing ligature materials at the present time, have each their own important faults. Both are capable of satisfactory sterilization, but in other respects do not meet the demands of surgical perfection. In perfectly clean wounds sterile catgut does well. In septic wounds, however, it not only readily becomes contaminated itself, but also by its very presence as a foreign body irritates the tissues, and aids in the cultivation of bacteria. As it softens it stretches, and may allow the bleeding to resume. Silk is nonabsorbable; and although in favorable cases it becomes encysted and remains quiescent, in other conditions it is sooner or later freed from the surrounding exudate, and eventually thrown out by suppurative or ulcerative means. Its application is, moreover, uncertain, and not always devoid of unpleasant consequences. In tying thick pedicles the shrinking of the tissues is very apt to allow vessels to reopen. Oozing from soft, degenerated tissues is sometimes beyond the control of ligatures, and the enclosure of nerve fibres within the ligature is an annoyance of not uncommon occurrence.

To these shortcomings are due the inventions of the angiotribe and the electrohemostat. The former first came into use by numerous surgeons, and its great utility, particularly in pelvic surgery, is assured. It must be confessed, however, that it is an unwieldy instrument for the needs of general surgery, and liable to get out of repair through the excessive strain demanded for satisfactory results. The electrohemostat, described and devised by Doctor Alexander J. C. Skene, is the outgrowth of the cautery appliances of Doctor Thomas Keith, and promises to occupy a wider field of usefulness. It consists essentially of a forceps, one jaw of which is heated by the passage of an electric current through a resistance wire placed in a chamber. In use the bleeding tissues are compressed by the forceps and dessicated by the heat of the electric current at a temperature of about 180° to 190° Fahrenheit. In this way the tissues are not destroyed, but the vessel walls are most closely united, and all hemorrhage effectually stopped. Nerves that may lie in the compressed tissues are devitalized, and give less after trouble. No sepsis is added. The structures manipulated are instead sterilized and left in a condition from which, the author says, "recovery is more prompt, uneventful and complete."

ANNOTATIONS.

L'HOMME Á LA FOURCHETTE.

About twenty-five years ago *the man with the fork* was one of the sensations of the day. The *British Medical Journal* has lately reported his death, an event which ends a famous surgical case. A Frenchman, **Lausseur** by name, employed in a drapery establishment, often amused his fellows by putting into his mouth down to the handle the big scissors—thirty centimetres long—with which he cut samples. One day at luncheon he repeated the jest by introducing a fork, handle first, into his mouth until the points were hidden by the closed lips. While attempting to take it out again the fork slipped from his grasp into his gullet. Efforts to remove it at the time failed, and it finally landed in the stomach. The victim took the accident good naturedly, as at first he experienced no great distress, and as the *Journal* states, "he actually composed a waltz about it which he called 'La Fourchette,' and he used to sing about it, accompanying himself on the piano." After a time, however, an abscess presented below the umbilicus. The stomach, it seems, had become adherent to the abdominal wall, and the fork came down into the abscess, from which M. **Labbé** removed it. This case was the first of the kind to be relieved by a surgical operation, and has endured so long that it is justly famous.

THE INCREASE OF OPIUMISM.

It has been frequently affirmed and no one has presumed to deny that opiumism is steadily increasing. Without an alternative, therefore, the assumption is accepted as a fact. When odius comparisons, however, are made and large opinions given as to the extent of this habit, without a show of reasonable grounds, some allowance may safely be made for enthusiasm or pessimism and bias. For this reason we are inclined to credit the suspicion of the *British Medical Journal* in regard to the statement of **Doctor W. H. Park** that one-third of the population in China smoke opium, since, as the *Journal* remarks, with few exceptions women and children do not smoke it and adult males cannot be said to constitute the third of the population. Opium was not used extensively in China during the early third of this century, but now its association is proverbial. Just to what extent, however, opiumism exists cannot be definitely stated since opinions are the only evidence at hand. Likewise the comparison made by **Norman Kerr** in the "Twentieth Century Practice of Medicine" is also questionable. When he states that in England, though opiumism is steadily increasing, there is probably less than a hundredth part of what there is in the United States, something more than an opinion should be presented. As bad as the condition is we are not prepared to accept such an offhand statement without considerable explanation and qualification.

PURE FOOD: A SAMPLE.

Physicians need not be told of the fact of substitution, nor of the extent to which unscrupulous pharmacists exercise an unwarranted responsibility. It is one of the bugbears of successful medical practice. It is a crime that is committed against a confiding public, not only in the apothecary's shop, but also in every walk of industrial life. As a sample of what is offered as a pure food, the following recipe is quoted by *Trade* as the result of a recent investigation made at a pure food exhibition in Cincinnati, by the inspector of jams and jellies in charge of the exhibits: For one barrel of jam:—Twenty pumpkins well cooked and washed, four gallons of sorghum, one quart of alcohol, one gallon of extract of raspberry. Cook for four hours and stir well. When done add about one bushel of millet or clover seed. This gives the proper amount of raspberry seed. Before taking from the fire stir in well four ounces of cochineal to give the proper color. When cool put in tubs. It goes without saying that by modifying the extract and the amount of coloring matter, any other variety of jam may as easily be manufactured, or in case it is already made up, a change of labels will accomplish the same result.

MEDICAL NEWS.

THE STATE MEDICAL SOCIETY.

The thirty-fifth annual gathering of this association will be held at the Grand Hotel, Mackinac Island, July 11 and 12. The annual meeting of the Upper Peninsula Medical Society will immediately precede that of the State Society, and a conjoint session of the two organizations will be held to commemorate the achievements of Doctor William Beaumont, whose original investigations in gastric digestion, conducted upon Alexis Saint Martin at Mackinac in 1825, the former society will memorialize by an address and the erection of a tablet. According to the preliminary announcement, the annual address of the president, Doctor Austin W. Alvord, will be delivered Wednesday evening. The address on Medicine will be delivered by Doctor Albert E. Carrier; that on Surgery by Doctor Oliver A. LaCrone; and that on Gynecology by Doctor Eugene Boise. In the medical section "Diseases of the Stomach" will be the topic for discussion Wednesday afternoon and "Tuberculosis" will receive consideration Thursday morning. In the surgical section "Appendicitis" will be discussed Wednesday afternoon. "Hysterectomy" and "Eclampsia" will enlist the attention of the third section. The reading of voluntary papers will consume the remaining time of the several sessions. Papers are limited to twenty minutes, and titles thereof must be sent to the General Secretary, Doctor Collins H. Johnston, Grand Rapids, by June 1, in order to be listed in the program, which will be issued about the 1st of July. Aside from the excellent program which is being prepared, the joint session with a district society numbering over one hundred and thirty, and the holding of the meeting at an historical and fashionable summer resort, are special inducements which should contribute to a large attendance.

STATE TREATMENT FOR CONSUMPTIVE POOR.

A BILL has been introduced in the General Assembly of the State of Ohio providing for the establishment of a "State hospital for the treatment of persons suffering from consumption and other tubercular diseases, which shall be known and designated as the Ohio State Tuberculosis Hospital." The conditions of the proposed measure which entitle the applicant to free treatment in the hospital are: (1) a certificate from a reputable physician setting forth that the person is suffering from tubercular disease in an incipient stage, or such as can probably be benefited by treatment; (2) a certificate from the local authorities having charge of the poor stating that the applicant is not able to pay the cost of treatment; (3) a certificate from one of the state's examining physicians certifying that the first physician's diagnosis is correct. If, after three months' sojourn in the institution, the superintendent shall decide that further treatment will not effect permanent improvement in the patient's physical condition, then he may be discharged from the hospital by the trustees. The idea of the measure is to afford treatment rather than to enforce isolation; to benefit the patient rather than to protect the community.

A FLOATING DISINFECTING PLANT.

THE United States Marine Hospital Service has just been made vastly more efficient by the completion for it at the Kensington Engine Works, Philadelphia, of the new disinfecting steamer, *Sanator*. The destination of this scientifically equipped disinfecting vessel is Havana. The steamer is 161 feet and 6 inches long and of 640 tons displacement. *Marine Engineering* gives the following description of the equipment for disinfecting purposes:

"There are two cross bulkheads forming between them the infection compartment of the hold into which is taken all baggage, clothing and effects to be disinfected. This compartment contains the forward ends of the two steam disinfecting chambers with the doors, cars and tracks, and also a vat for bichlorid of mercury for disinfecting certain articles by immersion in this solution. Above this compartment is a hatch eight feet square from the main deck and also clothes hatches from the two disrobing rooms in the deck house. This compartment is provided with lockers and racks, but is so built as to be easily disinfected or fumigated as may be necessary after infected goods are handled. The space aft of the infection compartment is the largest compartment in the vessel. In its forward end are the two steam disinfecting chambers, with the formaldehyde gas and ammonia generators, the steam exhauster, cars, tracks, doors and attachments. Goods after being disinfected in the chambers are brought through this compartment and taken up through the after-hatch which is eight feet square. At the sides abreast of the steam chambers are two fresh water tanks. Infected persons are brought on board by the side ladder near the forward end of the deck house. They enter the forward or disrobing rooms, there being one on each side. Their clothing is lowered through the clothes hatches to the infection compartment of the hold, where it is sorted and disinfected, going through the steam chambers and up the after-hatch. The persons being treated meanwhile pass from the disrobing rooms to the bath rooms, immediately aft, where are six shower bath rooms and four rooms, each with a tub and shower. After bathing they go to the dressing rooms, where their clothing has been delivered after disinfection. They then pass to the waiting rooms, where they remain until taken ashore or to their vessel."

The use of a vessel of this construction by the United States Marine Hospital Service would seem to reduce the danger from an epidemic of yellow fever in any of our insular possessions to the minimum.

RECENT PUBLICATIONS.

REVIEWS.

PROGRESSIVE MEDICINE—VOLUME IV.*

WITH the appearance of this volume there is afforded the best view of the whole year's work. As these books, one after another, have passed under our eyes we have been favorably impressed with the scheme of the work and wondered why it had not been made use of before. The four volumes cover the entire field of medicine so far as it is now known to us, and lay before the reader only new and useful matter and that too in a condensed, readable and attractive style. This particular volume treats of Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum; Genito-Urinary Diseases in the Male and Syphilis; Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics; Diseases of the Kidneys; Physiology; Anatomy; Hygiene; Practical Therapeutics. It is equally admirable with the preceding. Editor and publishers alike are to be congratulated on the great success of their undertaking.

*Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth; 398 pages, 51 engravings and 5 plates. Lea Brothers & Company, Philadelphia and New York.

The Physician and Surgeon

A PROFESSIONAL MEDICAL JOURNAL.

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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

INFANTILE NEPHRITIS.*

By CHARLES DOUGLAS, M. D., Detroit, Michigan.
PROFESSOR OF DISEASES OF CHILDREN AND CLINICAL MEDICINE IN THE DETROIT COLLEGE OF MEDICINE.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Nephritis in childhood is a disease to which the attention of physicians is seldom drawn, except after scarlet fever or other epidemic diseases. Nephritis in infancy is still less frequently a subject for their attention. Whether the difficulty in obtaining a sample of the urine of these little patients prevents us from recognizing the disease, or whether the disease itself is so rare, is a matter of doubt. Certain it is that these irritations of the kidneys, if frequent, are very light indeed, else their presence would be recognized by the edema which always follows any obstructive difficulty in these organs. Judging by the literature on this subject we would rather believe in the rareness of these affections. When we remember that nature has endowed these infantile organs with a capacity in health five times greater than the usual necessities of the body, we can easily see that many attacks of nephritis may be too slight to be recognized by an edema. This would be particularly liable to happen when only one kidney was involved. The great diuretic power of milk no doubt clouds many of these attacks in infants confined to a wholly or partly milk diet.

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*Read before the Detroit Medical and Library Association.

The rarity of the severe type of this affection may be judged by the few cases reported in medical journals, even in those devoted to pediatrics. The *Archives of Pediatrics* during 1899 mentioned only one case. This was an attack of acute Bright's disease reported in the *American Practitioner and News.* This child was three months old and showed neither a dermatosis nor an infection. In 1898 the *Archives* reported two cases from DOCTOR KERLEY, of New York, one following mumps in a vigorous boy, and the other caused by malaria in a girl of eighteen months. The May number extracts an article from the *Medical News* of 1897, wherein TAFT assigns other causes for nephritis than the acute infectious fevers but does not report a case. *Pediatrics* for 1898 gave an abstract from *La Medicine Moderne*, by ANDRIOTAKI, who reported twelve cases from two to ten years old of genuine acute primary nephritis, seen during four years in the various hospitals of Greece and Constantinople. No other case was reported in *Pediatrics* for 1898 and none except postscarlatinal cases were reported in that journal during 1899. The *American Journal of the Medical Sciences* for 1899 noticed a report by DOCTOR HIMMELSBACH in the *Buffalo Medical Journal* of one fatal case of acute nephritis in a child fourteen months old, caused by sweetening the food with saccharine instead of sugar. This had been done for twelve months before weaning and the child died of coma five days after the breast supply was stopped completely. The autopsy showed acute parenchymatous nephritis, and the urine contained albumin, casts, leucocytes and red corpuscles. This scarcity of cases reported agrees with the experience of medical men at the bedside. The general understanding is that about three-fourths of the sickness of infants results from errors of digestion; and the urinary disturbances are both short and rare during this infantile age, being indicated mostly by strong odors and frequent urination. In fact it is the exception to have a urinary change in any other form than this during the first two years of infantile life.

This freedom from kidney irritation is principally due to the milk diet of infants. While this would be a self-evident fact during the first year of life when the infant's food is generally diuretic in character, nonobstructive and nonirritating, we would not expect this rule to follow in the second year when a more diversified and irritating food is used. Nor in this expectation of results during the second year are we mistaken, as autopsies often prove, when we recognize no symptoms of kidney lesion during life. KJELLBERG states that in one hundred and forty-three cases of fatal intestinal catarrh, at the autopsy he found sixty-seven cases showing kidney lesions. He holds that this complication is more common in infants than in older children. He says in many of the cases there were only portions of the cortical substance involved, the balance of the kidney being healthy.

A look at nephritis as it has been presented to us in literature for the last forty years is interesting.

DOCTOR WEST, in his treatise on the diseases of children, written in the fifties said that nephritis, as an idiopathic affection, was exceedingly rare in early life. MM. RILLIET and BARTHEZ declined giving any description of its symptoms, on account of the few cases coming under their observation, although their autopsies showed in some cases, swollen, congested and indurated kidneys, resulting from inflammatory action during life. M. RAYER, writing in 1839, related two cases wherein purulent deposits in the kidneys of children a few days old showed that they had suffered from inflammation of these organs, but had showed no evidence of it during life. He said that nephritis was a very rare disease in early life, and that though cystitis had followed the application of blisters, there was no evidence of kidney irritation. DOCTOR WEST concluded this subject by referring to the frequency of albuminous urine in slight temporary and functional disturbance of the kidneys during typhus, typhoid, measles, and scarlet fever. He ascribed this to the altered condition of the blood and not to any primary disease of the kidneys. He also referred to the great frequency of anasarca following some epidemics of scarlet fever, and said: " Now and then, too, I have seen acute idiopathic dropsy succeed to exposure to cold or wet in the child, just as it does in the adult."

DOCTOR ELLIS, writing in the sixties, referred to an occasional diuresis following a more or less prolonged derangement of the stomach, recommending dietetic treatment, and animal and farinaceous foods with milk as the most suitable diet. He spoke of the common occurrence of desquamative nephritis following scarlet fever.

DOCTOR J. LEWIS SMITH, of New York, in the fourth edition of his work, written in 1879, made no mention of any form of nephritis in infancy save that following scarlet fever; and ascribed the inflammation to the irritating qualities of the scarlatinous poison on the kidneys. In the seventh edition of his valuable work he mentioned only the nephritis of scarlet fever and that of diphtheria. This edition was issued in 1890. Again in 1896, when he issued the eighth edition of his work, which was then thirty years standard before the medical profession, he made no mention of any infantile nephritis other than that following scarlet fever.

DOCTOR EUSTACE SMITH, of London, in his work published in 1884, mentioned only that acute desquamative nephritis following scarlet fever, and the results found by KJELLBERG in autopsies on cases dying of inflammatory diarrhea.

DOCTOR JAMES F. GOODHART, writing in KEATING'S "Cyclopedia of the Diseases of Children" in 1890, gave a full description of an acute nephritis as well as the chronic form. He called the acute form acute Bright's disease and gave as synonyms *tubal nephritis*, *parenchymatous nephritis*. He said most cases in adults were traceable to exposure to cold or wet or both. Almost all other causes are obscure in origin, but many are due to poisoned blood as in scarlet fever, diphtheria, erysipelas, or rheumatism, while some are associated with drinking habits. But in children, seldom could exposure be traced, and scarlet fever was mostly held to be the cause of acute nephritis. We quote RALFE, who said this was the cause in two-thirds of the cases under sixteen years, and HENOCH, who said that scarlet fever was the cause except in a very small number, and DOCTOR DICKINSON, who said that in fifty-four fatal cases, only four could be traced to wet or cold.

DOCTOR GOODHART went on further to remark that as we now recognize nephritis as much more common in childhood than we supposed, we may find that exposure plays a much more prominent part in its cause than these figures indicate. He also referred to phthisis and lardaceous disease as a cause of nephritis in childhood as they are in adult life.

DOCTOR HOLT, in his work published in 1897, agreed with the above causes and added as an important one, too early feeding with solid food in the convalescence from infectious diseases. DOCTOR HOLT also refers to acute exudative nephritis as following acute diarrhea occasionally.

TAYLOR and WELLS, in their works published in 1898, also cited too early feeding of solid food in the convalescence from infectious diseases as an etiologic factor in causing nephritis.

DOCTOR ROTCH, in his work published in 1895, entered more fully than the above writers into a description of infantile nephritis. He described the acute parenchymatous nephritis and that form following scarlet fever, but did not mention cold and wet as etiologic factors. In fact he failed to assign causes for the affection other than the acute infectious diseases. He thought that children under fifteen were very little prone to arteriosclerosis and other circulatory disturbances and consequently were not likely to have the small granular kidney. Where this does occur he ascribed it to a chronic irritation following scarlet fever.

DOCTOR ROTCH particularly called attention to a condition named physiological albuminuria, wherein a small amount of albumin, less than one-twelfth of one per cent., appeared regularly in some micturitions. It comes and goes without apparent reason, but he ascribed it to exercise and nitrogenous food. This albumin seldom appears in the morning discharge, and these children may be vigorous or delicate. The diagnosis can only be made by many examinations of the urine at different hours of the day. These cases usually range from five to fifteen years of age, and the albumin may disappear for days. DOCTOR ROTCH said a decided decrease in the urea was evidence of kidney disturbance, but claimed that children between three and seven years secrete much more urine and urea than those older do, and this must be remembered always.

DOCTOR ROBERT A. TAFT, in the *Medical News* of 1897, disagreed with the generally accepted belief in the infectious fevers being the nearly sole cause of nephritis in childhood. He ascribed this disease largely to (1) improper food and hygienic environment; (2) hereditary syphilis and tubercular disease; (3) inherited weakness of the kidneys. He considered the greater prevalence of this disease among the poor as proof that food and environment are factors in its production. These patients usually have suffered from repeated attacks of diarrhea, and the excess of indican in the urine shows the fermentative processes in the alimentary canal. That this stands in the relation of cause to effect is proven by the rapid improvement obtained by regulating the diet rather than by medicinal treatment. DOCTOR TAFT considered that changes in the intestinal canal cause toxins, the same as infective fevers do, and these also irritate the kidneys in exit or elimination. DOCTOR THOMPSON explained this by saying that this causes a change in health with a different density of the blood, which by a modified osmosis allows the albumin to strain or filter through the kidneys. He said that a solution of albumin injected into the rectum of a dog will pass, almost unaltered, through the kidneys; that on this basis an infant on an albuminous diet which it cannot assimilate will have albuminuria during its continuance on this food.

DOCTOR YEO considers that excessive albuminous material in the diet, so overloads the kidneys with waste as to cause a temporary functional hyperemia of them, and a slight leakage of albumin from the blood. This, DOCTOR YEO thinks, may be the first link in the chain of subsequent organic disease of the kidneys.

ALFARO, writing from Buenos Ayres, in the *Journal of the American Medical Association*, advises how to avoid nephritis after scarlet fever, by feeding a purely milk diet; and also avoiding the excretion by the kidneys of all irritating foods and medicines (such as phenol, salicylic acid, antipyrin, acetanilid, et cetera. He does not mention any particular foods to be avoided.

SAJOUS' *Monthly Cyclopedia*, October, 1899, copied a diet for interstitial nephritis from DOCTOR FLOYD, written for the *Medical Mirror*. This diet is made for adults, but the lines indicate the diet suitable for infants under like conditions, or those approaching them. DOCTOR FLOYD excluded the flesh of larger animals—beef, mutton, and pork, but accepted white meats as chicken, rabbit, game and birds; also fish, oysters, cream, milk and butter, with starchy foods and green vegetables.

In all these articles there is little reference to the nephritis of infancy, most writers referring to nephritis of childhood. Those who speak of nephritis as following diarrhea certainly have cases in infancy under consideration, as we have not much diarrhea in children over two years old, the time when infancy ends and childhood commences.

The symptoms of acute nephritis are those of any febrile disease, —chills, fever, headache, loss of appetite, backache, et cetera. As these symptoms are so common the attention of the physician is not drawn to the kidneys unless there is very decided absence of urine. While children are on a milk diet, entirely or partly, this suppression of urine is not likely to be pronounced enough to cause alarm and even if alarmed it is often so diffiult to obtain a sample of the infant's urine that recovery is apparent before it is obtained. The only reliable symptom in infancy indicating acute nephritis is edema, which we see so seldom except after infectious diseases.

The great difference in the pathological results following nephritis in infancy, childhood and adult life has made these attacks little searched for in infancy. This is mainly due to the great reparative power of the infantile kidney, and as I have before stated, to the milk diet also. BOUCHARD places the capacity of the healthy infantile kidney as five times above its necessities. A milk diet demands a great capacity on account of the immense quantity of water it carries. This places these organs in a comparatively protected condition so long as the milk diet continues as part of the daily regimen. What better condition could we have than surplus capacity and the best diuretic food either nature or man can suggest. No doubt this explains the fact that infantile kidneys repair perfectly after being diseased, while those of childhood are not so reliable, showing occasional cases of small granular kidney following an inflammation; and the kidneys of the adult when once seriously disturbed seldom return to a healthy condition again.

Four cases of infantile nephritis came under the observation of the writer during the past summer, and were interesting as they illustrated the powerful effects of a changed diet on the kidneys. I will be brief in the history of these cases.

Case I.—I. M., aged six months, weaned, of small physique, weighing ten pounds, was brought to me suffering from malnutrition. His color was waxy white, limbs small, flesh soft, he was very wakeful, and had four to six unhealthy stools daily, urine regular. He was weaned at two months on account of sore nipples, and had been fed cow's milk, condensed milk, and proprietary foods with varying results of vomiting and diarrhea for the last three months. At one time he weighed twelve and one-half pounds, but was falling off in weight when I saw him first. I gave the mother an unfavorable prognosis, but she desired me to treat the infant. In changing the diet to secure proper stools I used preparations of milk and found that the child had lost the power to digest it. This, I find, is a frequent result in such cases. To obtain a proteid I ordered beef juice, but it relaxed the bowels. Then I ordered beef tea, which was enjoyed and taken readily in the amounts allowed. This was combined with a little rice starch. After taking this with apparent success for nearly a fortnight, the child sickened with fever and vomiting, refusing nearly all food. On the fifth day he became edematous in the face and legs, and the urine showed albumin freely. I then gave him a weak cream mixtnre, stopping all beef tea, and he improved in the secretion of urine, thus reducing the edema. This child continued in the same uncertain condition of digestion and sleep with no increase in weight until he died at eight months old. The edema would occasionally return a little until the end.

Case II.—E. J., a healthy female fourteen months old still nursing, in August, was allowed to eat about a dozen crackers one day. This was followed by acute indigestion, high fever, convulsions, vomiting and diarrhea. She came under treatment by the writer on the fifth day. There was then a temperature of 104°, with decided meningeal symptoms due to toxemia, and disturbed digestive organs. Under treatment she improved, but the stools remained slimy, green, and foul, and the stomach was sensitive. I was compelled to wean her, as the digestion did not improve. Diluted milk did better and the stools improved, but soon she refused absolutely to taste the milk as the mother foolishly tried to steal in some medicine with it. The color made her refuse it every time. I then allowed her beef tea which she took freely as directed, enjoying it. The stomach and bowels acted well for a week, when she had a renewal of the fever with loss of appetite, and the parents feared the convulsions would return. She took water freely but did not urinate sufficiently, and on the fourth day of the fever she became edematous with albuminous urine. I then stopped all beef tea and gave diluted cream only. She took this moderately, the edema disappeared in a week, and she made an uninterrupted recovery, being now well and strong, eating freely of solid food.

Case III.—E. F., male, aged five months, weighing nine and one-fourth pounds, came to the writer in August also. He weighed eight pounds at birth. He was not nursed, as the mother had no milk for him. He was very much emaciated, and had run the usual course of such cases, trying nearly every kind of food, but always with the same result—vomiting and green slimy stools. The first modification of his food gave such decided relief that the mother insisted on continuing it, though I thought the proteid was too high, and so told her; but she feared a change lest it should act as previously had occurred. After a week I received a telephone message to come again as baby was worse. I found the little one vomiting, bowels loose, and considerable fever present. With other treatment I reduced the food very low, but he vomited the low diluted milk also. I then gave him beef juice and rice water and boiled water in very dilute form. He took it well and retained it, the bowels acted better, and the strength was gradually increased. The child did well for a couple of weeks when he had a slight fever, followed by edema of the face and limbs. I then stopped the beef juice and gave him diluted cream. He improved steadily, all edema disappeared, and he has become strong, fat and vigorous on a cream and starch diet, with no return of any unfavorable symptoms.

In none of these cases did I aim at a medicinal treatment of the edema, but relied entirely on the diuretic power of the dilute cream or milk. In each case the result was prompt and satisfactory. These cases illustrate the bad results on the kidneys in infancy, when a nitrogenous diet, exclusive of milk, was adopted. While the food was albuminous always, it lacked the diuretic properties needed. Instead of relieving the body easily of waste products, the meat extracts increased the load, causing hyperemia of the kidneys till they refused to work.

Case IV.—The last case, C. T., aged ten months, a small but well nourished female, came into my care when suffering from edema so that she could not open her eyes. Her face was hard from the swelling and the limbs very much enlarged. The history was that of weaning, improper feeding, causing fever, vomiting, loose bowels, and general refusal of all food. Under treatment she had improved and was demanding food. She was given beef peptonoids only, and in two days began to show edema. After relieving the bowels I allowed her diluted cream with plenty of boiled water. The edema disappeared promptly on this diet and the child is now strong, fat and vigorous. As fast as the stools showed good digestion I allowed oatmeal starch and increased the strength of the cream mixture.

Were it possible to secure samples of urine in infants an examination early would more clearly place the relation of cause and effect. Arguing from the treatment and results, the absence of milk from the dietary would in part at least explain the cause.

Samples of urine can be obtained in infants by putting a pad of absorbent cotton against the genitals and having the nurse press the urine out of it promptly into a glass after urination. This practice, if carried out, would give early warning of kidney disturbance about weaning time and largely direct the diet and treatment. This seems to be important likewise in the febrile digestive disturbances of infancy.

INTESTINAL SAND.*

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THE subject of intestinal sand is interesting on account of the fact that but few cases of it have been reported in medical literature. Among the earliest observations upon this subject were those of MERKLEIN,[1] in 1842, who found undigested plant cells and hairs in the stools of patients who had been given calomel. FRERICHS,[2] in 1846, found that ordinary cellulose, except in the form in which it is found in very young plant cells, is practically indigestible and appears unchanged in the feces. A number of other observers both in Germany and England have noticed upon a careful examination of the feces that pure cellulose is practically indigestible, not being attacked by the intestinal secretions nor by the bacteria usually present in the intestinal canal. RATHAY,[3] in 1874, conducted a series of experiments upon himself to ascertain the extent of vegetable digestion in the body. He limited his diet for a week to tea and graham bread and examined his stools daily for five days. As a result of this investigation he found that the outer part of the shell and glutinous layer of the wheat were not digested. SZYDLOWSKI,[4] in 1879, claimed that the epidermis, vegetable hairs and the external coating of all berries and fruits are not acted upon by the digestive juices.

The first description of intestinal sand was given by LABOULBÉNE[5] in 1873. He says that the material which he found in the feces in certain cases of intestinal pains, resembles yellow or brown sand, the largest grains of which are three-fourths to one millimeter in diameter and the smallest two to three-tenths of a millimeter. The surface of these particles was uneven and surrounded with prolongations which had the shape of irregular crystals. In this sand he found a few siliceous particles imbedded in organic matter and certain vegetable cells which had not been acted upon by the digestive juices. A vegetable diet is considered by LABOULBÉNE to be the source of this material which he calls "sable intestinal."

A few similar cases have been reported in London, two of which are worthy of notice. DELÉPINE,[6] in 1890, reported the case of a lady, aged seventy years, suffering with hysteria and constipation. In her stools he found irregular granules or small masses, one or two millimeters or smaller in diameter and brown in color. These masses consisted of groups of vegetable cells closely packed together, having extremely thick walls which were traversed by many single or branched canaliculi. Upon the surface of these cells and between them he found a few siliceous particles. The patient had been eating one or two baked pears almost every day for a few weeks and the gritty particles in the stools were found to be identical with the groups of sclerenchyma present in the soft flesh of the pear. SHATTOCK,[7] in 1896, reported the case of a lady, aged forty-five years, who had suffered for seven years with signs of left hydronephrosis. After an aperient she would pass about two ounces of sand in the stools by weight. The passage of this material was accompanied by severe pain in the back. There was no diarrhea nor intestinal pain in this case. The patient was very fond of pears. Microscopical examination demonstrated this sand to be composed of compact groups of thickened vegetable cells and a few minute fragments of bone. The walls of these cells were very much thickened and contained many simple or branching canals. It was found that these cells were the same as those present in the groups of sclerenchyma found in the soft flesh of the pear, thus demonstrating the source of the sand.

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*Read before the WASHTENAW COUNTY (Ann Arbor) MEDICAL SOCIETY.

FÜHRBRINGER,[8] in 1892, reported three cases which had been diagnosed by their attending physicians as gall-stone colic on account of the history of occasional paroxysms of severe pain in the liver region and because the concretions found in the stools after the attacks were supposed to be gall-stones. FÜHRBRINGER found that the tests for cholesterin and bile pigment in these stones were negative, thus excluding the constituents of the bile from their composition. Upon examining them microscopically it was found that they were composed of the characteristic so-called stone cells of typical vegetable sclerenchyma. The author correctly regards the pear as the source of these concretions which he calls pseudogall-stones. These cases are of considerable diagnostic interest because they show the difficulty of differentiating certain cases of intestinal lithiasis when located in the region of the ascending colon and hepatic flexure from gall-stone colic without the occurrence of jaundice unless a careful microscopical examination of the stools is made in addition to the study of the clinical picture of the disease.

A few cases of intestinal sand have been reported in France, where the disease appears to be more commonly associated with mucomembranous enteritis than constipation, probably on account of the great frequency of the neuroses among the French people. Enteroptosis or gastroptosis is frequently found in these cases. MARQUEZ,[9] in 1879, reported the case of a woman who suffered with frequent attacks of acute abdominal pains, not localized in any particular region. The stools passed after the attacks contained some intestinal sand, or grains, the constituents of which were not determined. MATHIEU, in company with RICHAUD,[10] in 1896, described two cases of intestinal lithiasis in women who suffered with muco-membranous enteritis. The sand was of a yellowish color and was composed of organic material, triple phosphate of calcium, carbonate of lime and some other mineral substances. There were no traces of cholesterin or bile pigment. Further investigation with the microscope would probably have demonstrated this organic material to have been vegetable sclerenchyma. Similar cases have been reported by MONGOUR,[11] ODDO[12] and DIEULAFOY.[13] The composition of the sand in these cases is invariably given as organic material with the salts of lime and magnesia and a trace of silica. The nature and source of this organic material is not described. DIEULAFOY regards intestinal lithiasis as a manifestation of the gouty diathesis of which the renal, vesical and biliary lithiasis are additional manifestations. Such a close relationship between the various forms of lithiasis has not been demonstrated to exist because the salts of uric acid are rarely found in intestinal sand. The most recent work upon the subject of intestinal sand has been done by CHEVALIER,[14] who states that one important sign of the disease is a painful crisis in the course of a muco-membranous enteritis like hepatic or renal colic. He reports the case of a woman of middle age who was a neurasthenic and suffered with constipation and mucous enteritis. She had crises of severe pain in the whole abdomen with no distinct localization whenever her diet contained an excess of vegetable food. In some of these cases the intestinal irritation is so great that there is vomiting and vertigo. The crisis stops with the passage of a variable quantity of brown or yellow sand. The author considers this disease to be due to a chronic inflammation of the intestine, the sequel of some previous lesion of the mucosa due to typhoid fever or some other form of enteritis. An excess of vegetable food in the diet and its resulting constipation leads to the chronic inflammation and the accumulation of intestinal sand. OSLER,[15] in 1898, reported a similar case in which the patient upon two occasions passed a large quantity of sand of a beautiful garnet color which was composed of vegetable matter.

The case which I purpose to report is of special interest on account of the difficulty experienced in determining the nature and source of the material found in the stools. The patient is a woman, aged fifty-one years, unmarried and a milliner by trade. The family and personal history are negative. The patient eats an excess of food with her meals. She had measles at fourteen and malaria at thrty-three.

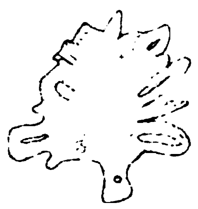
The present disease began about twenty-eight years ago when the patient noticed a burning sensation in the right hypochondrium, most marked after meals. This sensation soon changed into sharp pains which are quite constant and have gradually increased in severity. About five years ago she began to complain of aching pains in her arms and a feeling of dizziness. Four years ago the patient began to show some emaciation, and her complexion became quite muddy or dark yellow in color. At this time the stools were first examined, and found to contain a large amount of undigested starch and meat. After restricting the use of the carbohydrates in the diet to a minimum, there was some diminution in the severity of the pains. The patient states that after eating a very small amount of toasted bread, she has paroxysms of severe pain in the right side of the abdomen. A year later the stools were found to contain a variable quantity of yellow or brown sand, gritty and hard in consistency.

During the past year the patient has had quite regular, almost daily, paroxysms of sharp pain in the right side of the abdomen just below the edge of the ribs. She also complained of a grating sensation like that of two rough surfaces moving over each other in the right hypochondrium and other parts of the abdomen. Exclusion of the products of wheat from the diet lessens the severity of these pains, some of which are accompanied by nausea and vomiting and blueness of the lips and finger tips. There is also a constant dull, steady pain in the right side just below the edge of the ribs, which is increased upon the slightest exertion as in walking, or arising from a sitting position. There is a marked feeling of fullness and increased pain in the stomach after meals. The patient complains of a sensation of weakness, especially in the right side of the abdomen, and general nervousness, being unable to do her usual work. The bowels are constipated. There has been no perceptible loss in weight.

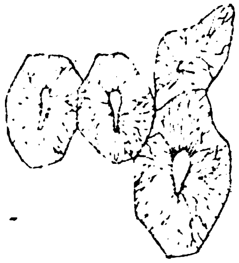
The patient's general nutrition is poor, the mind acts rather slowly, and the expression is that of a neurasthenic. The skin over the face is a dark yellow in color, and pale over the rest of the body. The heart and lungs are normal. Neither the liver nor the spleen are enlarged. There is marked tendeness upon palpating the abdomen on the right side. The lower edge of the right kidney can be felt on deep inspiration. Marked succussion sounds can be heard in the region of the navel three hours after a meal, which indicates some dilatation of the stomach. A chemical analysis of the stomach contents was not made, but the patient has had less distress in her stomach after meals since she has been given dilute hydrochloric acid.

Auscultatory percussion shows the change in tympanitic resonance on a level with the navel. Examination of the urine shows a slight trace of albumin and a few hyalin casts, but no sugar. The blood examination shows 3,425,000 red blood cells and eighty per cent. of hemoglobin. The leucocyte count is 7,500.

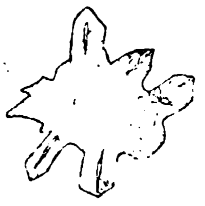
The stools are of a dark brown color, well formed and normal in consistency. After frequently washing them with water and allowing a sediment to form a number of small grains of pale brown sand intermingled with a few fine black particles, were found to separate. The amount of sand obtained from each stool was about two drams by weight. This sand readily sinks in water, and is gritty and hard in consistency. Chemically it contains a small amount of calcium, magnesium and ammonium. Doctor Novy found a small amount of silica present in this material. The tests for cholesterin and bile pigment are negative. Upon microscopical examination it was found that this sand consisted of isolated groups of thickened vegetable cells closely bound together. There are conical, hexagonal and irregularly-shaped prolongations from the edges of these groups of cells. It was later determined by Professor Newcombe that these masses were groups of typical vegetable sclerenchyma. The prolongations were the individual cells separated to some extent from their groups by the dissolving action of the digestive juices. These cells have very thick walls and a very small lumen, caused by the mutual pressure to which they are subjected during growth. It is a form of vegetable tissue which has lost its cellular character, and has



Group of schlerenchyma found in stools—100 D.



Schlerenchymatous cells—450 D.



Group of schlerenchymatous cells found in stools—100 D.

been converted into the so-called stone cells by a process of hardening or lignification. These groups of cells form the hard concretions about the size of a grain of sand, which are found in the soft flesh of the pear. Sclerenchymatous cells are also found in the stones of cherries and plums, pepper, cinnamon, the tapioca and sago grain, as well as in the cuticle of various fruits. [16]The material found in the stools of this case gave the characteristic chemical reaction of vegetable sclerenchyma, that is, assumed a pink color upon the addition of phloroglucin and concentrated hydrochloric acid. After macerating these groups of cells in concentrated nitric acid containing some potassium chlorate, the individual cells readily separated, thus indicating the cellular character of these masses.

It was considered important to determine the source of sand in the stools, as it was thought to be a factor in the causation of the intestinal irritation in the case. A duplicate of the patient's diet for one day was preserved and submitted to Doctor Novy for examination. The only possible source for the sclerenchyma was found to be the gooseberry jam which the patient ate with her meat. This jam was prepared in the ordinary way by boiling the gooseberries with sugar for about three-quarters of an hour, and then highly seasoned with pepper and cinnamon. It contained the same small compact masses of cells together with the small black particles of cinnamon as were found in the stools. I found the same sclerenchyma present in the cuticle of fresh gooseberries, thus demonstrating the source of the intestinal sand. The patient was advised to exclude from her diet all jam and vegetable food which was supposed to contain stone cells. She was also given tincture of nux vomica before meals, extract of malt with her meals, and dilute hydrochloric acid after meals. This treatment was continued for three months with no distinct improvement in the symptoms. About two months ago, on February 7, 1900, the diet was restricted to milk and eggs. At the present time there is a marked improvement in the patient's condition. The pains have lessened in severity and there is no sand in the stools.

The abdominal pains in this case were probably due to the irritation caused by the presence of undigested vegetable food in the intestinal tract. Furthermore, this indigestion, together with the pain in the back and general nervousness, are to be regarded as in part due to the slight degree of enteroptosis which is present in the case. The presence of the sclerenchyma in the stools is not to be regarded as the cause of the entire intestinal irritation, but rather as a sign of faulty vegetable digestion in general. The folly of limiting the diet in chronic disease of the gastro-intestinal tract to vegetable food is quite apparent in this case. Vegetable food in general is much more difficult of digestion than meats in proportion to the amount of nutrition and body heat furnished by it. It is probable that the sclerenchyma of vegetable food accumulates gradually between the folds of the mucous membrane of the intestine until it forms so large an amount of foreign material as to act as a local irritant, thus setting up a paroxysm of abdominal pain, followed by the appearance of some of this material in the feces. The fine particles of this sclerenchyma are separated with difficulty from the mucous membrane of the intestine on account of the length of time required for the stools to be freed from it after its apparent source has been removed from the diet. Four months of adherence to a strict nonvegetable diet were required in this case before the stools became freed of the sand. I found the same sclerenchyma present in the stools of the patient's sister, who had been eating some of the jam with her meals, but there was no intestinal irritation in her case. I also found the same stone cells present in my own stools after eating about half an ounce of the jam, with no resulting intestinal disturbance. This sclerenchyma is apparently not digested by healthy individuals, and usually causes no intestinal irritation unless ingested in large amounts when the indigestible parts of the food readily accumulate in the intestine and cause irritation.

In conclusion, it should be stated that the organic material which has been found in the majority of the cases reported as intestinal sand, is vegetable sclerenchyma. The variety of the sclerenchyma depends on the nature of the food taken in the diet. True intestinal sand, like biliary or renal sand, is formed by a deposit from the secretions of the living body, and consists largely of the salts of lime, magnesium and ammonium; on the other hand most of the so-called intestinal sand consists largely of the concretions of vegetable sclerenchyma present in the residue of undigested vegetable food, and contains a secondary deposit of a small amount of inorganic salts, including a few siliceous particles.

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USE OF ETHYL BROMIDE AS A GENERAL ANESTHETIC.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

The object of this paper is not to produce anything new, but to call the attention of the academy to a drug much used in the east and abroad, yet, as far as I know, completely ignored by the profession in Detroit.

I was introduced to the use of ethyl bromide by Doctor E. E. Montgomery, of Philadelphia, to whom I am indebted for references and information regarding its use. I wish also to acknowledge the many kindnesses shown me by Doctor Frank C. Hammond, of Philadelphia, who has had wide experience with the use of ethyl bromide. Discovered by Serullas in 1827, first proposed as an anesthetic by Nuelly in 1849, ethyl bromide, through the championship of M. Rabuteau in France, Montgomery, Chisolm, Turnbull and Hammond in this country, has become recognized as the best general anesthetic for examinations and operations which can be completed in from five to ten minutes. Ethyl bromide is a colorless liquid with a pleasant odor and sweetish, somewhat burning taste, its boiling point being 38° to 40° centigrade. It is not caustic, and does not irritate the air passages as does ether and chloroform. Air and moisture cause its decomposition, with discoloration of the solution. It then becomes unfit for use, owing to the poisonous effects of the bromide which is liberated.

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*Read before the Detroit Academy of Medicine.

Ethyl bromide should not be confounded with ethylene bromide, which contains over ninety per cent. of bromine, and is never given by inhalations. Only pure ethyl bromide should be used. When pure the solution is perfectly clear, and should always be examined before it is administered, even though a fresh package is used. SHOEMAKER says: "In small doses narcosis is produced without affecting arterial pressure. Large amounts diminish the blood pressure by paralyzing the peripheral vasomotor constrictor system, or upon the vagi, toxic doses disturb the action of the heart, but produces the arrest of respiration before that of the heart."

TURNBULL says: "When inhaled it produces the agreeable effects of chloroform without increasing the pulse over its normal beat. There is a pricking feeling of the skin at the elbows and in the hands, with a rapid loss of power to move; the skin is in a few instances moist, but in the majority of cases is natural. It differs from ordinary ether in that the stage of excitement is short, and the sedation and subsequent elimination rapid."

F. C. HAMMOND says: "There is a primary dilatation of the pupil and the conjunctiva is congested, which condition passes off in a few minutes."

The time required for complete anesthesia varies from thirty seconds to five minutes, the average being one and one-half minutes. In my experience fifty-five seconds is the shortest and three minutes the longest time required.

The preparation can be procured in one ounce tubes of brown colored glass. In this way a fresh solution can be used for each administration, or the tube can be closed with wax and the unused solution preserved. The color should be carefully examined before using.

Ethyl bromide is usually administered on a folded towel. Pour on the towel from one to two drams, according to the age of the patient, and apply to the nose, holding the edges against the face to exclude the air. Do not remove the towel until anesthesia is complete. Should more of the drug be required, remove part of the folds or layers of the towel, pour on the anesthetic and replace the parts removed, to delay evaporation.

Authorities differ as to the length of time a patient can safely be kept under the influence of ethyl bromide. Some say never longer than five minutes, while equally good authorities say it may be administered fifteen minutes. In my own experience eight minutes is the longest time that it was administered. The effect passes off in a very few minutes, and the after effects are almost nil. Vomiting occurs in a small percentage of cases, and an odor of mustard remains on the breath for a day or more.

The preparation for anesthesia should be the same as for ether or chloroform, and the treatment of untoward symptoms the same as for ether.

The principal condition for the use of ethyl bromide as a general anesthetic is that the time required to complete the operation must be short. It may be used to produce anesthesia, when ether or chloroform may be substituted.

It finds its best field in gynecologic and ophthalmic surgery. As I have had very little experience with it in gynecology I will quote from DOCTOR HAMMOND's paper, "The Value of Ethyl Bromide in Gynecology and Obstetrics:" "The ideal anesthetic for pelvic examinations is ethyl bromide. It requires but a very small amount, the return to consciousness is very rapid, almost as soon as the examination is completed, and the postanesthetic effects are practically nil. This is the anesthetic for office use, as the patient can invariably leave for home within a few minutes after its administration." DOCTOR E. E. MONTGOMERY says: "I do not use it for any prolonged operations, only for those in which the operation can be accomplished in a few minutes, and I use it much more largely for the purpose of examination."

For its general obstetrical work, I again quote HAMMOND: "Ethyl bromide has been given a thorough test in general obstetrical work, and has emerged from it nobly. It eases the pain quickly, the patient retains her intelligence, it does not suspend involuntary nor voluntary muscular contractions, and does not predispose to inertia uteri, nor postpartum hemorrhage. Since the introduction of anesthesia into obstetrics by SIMPSON we have sought carefully for an ideal agent and have found it at last in ethyl bromide. LEBERT first employed it in obstetrics. He published four cases—a forceps operation, two normal labors and a version. He referred to it with such enthusiasm that many observers followed in his wake. Ethyl bromide is without doubt the unappreciated anesthetic, so much so that only four or five of the various text-books on gynecology and obstetrics refer to it. Even KELLY, in his admirable article on 'Anesthetics,' in his late work, does not mention it at all."

My experience, including about one hundred administrations, is confined to ophthalmic surgery. I have never seen any untoward symptoms.

One has but to call to mind the unpublished cases of death from anesthetics within his knowledge to realize how difficult it is to arrive at an accurate mortality rate.

The Surgical Congress, convening annually at Berlin, furnishes a comparative death rate of ethyl bromide, chlorofom and ether. These reports from 1890 to 1897 show the mortality rate to be: choloform 2,023 cases, one death; ether 5090 cases, one death; ethyl bromide 5,228 cases, one death. Reich, a German authority, estimates sixteen deaths in 60,000 cases of anesthesia by ethyl bromide. I have collected from other sources 1,922 cases with one death, making a total of 67,150 cases with eighteen deaths, or one in 3,736. I have no doubt impurities in the drug used was responsible for some of the deaths. One authority goes so far as to say: "Deaths can invariably be traced to the employment of an impure article." I can find no record of death from the use of the pure drug dispensed in one ounce tubes, when a careful examination has been made before administration. So long as we must produce general anesthesia in unselected cases, death will occur. No one anesthetic is applicable to all cases. The question to be asked is, "Which anesthetic is the safest in this particular case?" When there is no choice as to safety to the patient, the one which will give the least inconvenience to patient and operator may be selected.

It would seem, therefore, that in ethyl bromide we have an ideal anesthetic for general obstetrical work and short operations, that is, at least, as safe as ether or chloroform, devoid of all the disagreeable features of either.

912 Chamber of Commerce Building.

ELECTRICITY IN THE TREATMENT OF MENSTRUAL DERANGEMENTS.*

By PETER M. CAMPBELL, M. D., Detroit, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

In deficiency or absence of the regular monthly flow—amenorrhea—in young girls just entering womanhood, electricity in some form is particularly indicated. My own preference in this class of cases, for several reasons, is the static current. It requires no disrobing, as the treatment is given through the clothing and for the same reason takes less time than any other form. It leaves the patient with that innate modesty preserved which can be accomplished in no other way. It is eminently satisfactory in the great majority of cases.

Technique.—The patient is seated on the insulated platform—negatively insulated. The positive pole is grounded to any metallic substance and carried to the earth (with a small machine this is not necessary). A brass-pointed electrode is connected by means of a chain to a convenient gas fixture or steam pipe and the machine set in moderate motion—from one to two hundred revolutions a minute. A warm spray with light sparks is administered over the sacral and pelvic regions for from ten to twenty minutes three times a week for from one to three months. Treatment need not be suspended during the menstrual period.

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*Read before the Wayne County (Detroit) Medical Society.

Equally good results can be obtained by the use of the constant (galvanic) current with very little exposure. A large electrode is connected with the positive pole of a galvanic battery and applied to the sacrum. It should not be less than thirty square inches in area. The negative electrode should also be large, not less than twenty square inches in area, and applied over the lower part of the abdomen. They may be covered with sponge, punk or absorbent cotton and should be thoroughly moistened with a normal saline solution. The current should be turned on and off gradually so as to avoid disagreeable shocks. Twenty to fifty milliamperes should be used by the swelling method, gradually turning on the current to the limit and as gradually reducing it to zero. This current should be used for ten minutes. Then, without changing the electrodes, apply the induced current from the primary coil of a faradic battery for from five to eight minutes to the limit of endurance.

Another method, and one that is applicable to the small percentage of cases that will not respond to the former methods of treatment, is the intrauterine. A flexible electrode is attached to the negative pole and inserted into the cavity of the uterus. This can be accomplished very nicely without the use of a speculum by using the index finger as a guide. A large electrode is placed under the sacrum and another over the lower abdominal region by means of a bifurcated cord attached to the positive pole of the battery. The object of this is to pass a uniform current through the body of the uterus. The current is gradually turned on and from fifteen to twenty-five milliamperes used for ten minutes followed by the induced current from the coarse primary coil for from five to eight minutes. I have yet to meet with a single failure in a case of this nature.

Illustrative Case.—A school teacher, age twenty years, whose general appearance was fair. She weighed one hundred and twenty-five pounds and was apparently well developed. Patient was a hard worker and very ambitious. She had menstruated at fourteen years of age and about once a year afterward but never at any time normally either in quantity or quality. The flow lasted from one to two days and was almost colorless. She had been treated by a gynecologist by the usual methods, namely, tampons, hot douches, et cetera, without benefit. He reported a partially developed uterus (not infantile) in a slightly retroflexed condition, but the ovaries were apparently normal. She was very much constipated and suffered severely from headaches. I at once put her on intrauterine treatment and three weeks later she menstruated very little, the discharge lasting one day. Treatment was continued and in four weeks she had her first normal menstruation, which lasted two days. Treatment was continued three weeks longer, when the flow lasted three days and was apparently normal in amount. Indirectly the treatment relieved the constipation. One year later menstruation remained normal, lasting four days. Her general health was good and a more thankful patient it has never been my good fortune to treat.

Menorrhagia, menstrual pain, dysmenorrhea, no matter how severe the pain, should be treated by the static current as outlined in the treatment of amenorrhea, or by the abdomino-sacral application of the constant current, fifteen to sixty milliamperes, using large electrodes well moistened with a normal saline solution and the current turned on and off gradually to avoid shocks. In case the pain is due to endometritis, intrauterine treatment is always indicated. When the chief symptoms are pain and leucorrhea the positive pole should be the active one. The electrode must be nonoxidizable, namely, carbon, platinum or gold. A current of ten to thirty milliamperes should be used for from three to five minutes, and, with the electrodes still in position, the constant current turned off and a moderate induced current used for five minutes.

Menorrhagia and metrorrhagia, whether due to endometritis, retained shreds of tissue from a miscarriage or neoplasm may be successfully treated by the amalgam-zinc method devised by MASSEY, of Philadelphia. A suitable-sized zinc olive is chosen and thoroughly cleaned by the use of muriatic acid. It is then smoothly and completely covered with metallic mercury and inserted to the fundus of the uterus. A current of twenty to fifty milliamperes is then employed for four minutes when the current is turned off and the electrode is withdrawn the length of its active surface and the process repeated until the bulb impinges on the internal os. It should be followed by the use of the primary faradic for five minutes. This method is thoroughly antiseptic. The action of the current is to liberate the oxygen and chloride from the fluid in the tissue which combines with the mercury forming the oxychloride of mercury which by the cataphoric action of the current is carried into the diseased tissues. This method is nonsurgical in appearance, requires no anesthetic, is entirely free from danger and eminently satisfactory in results. It is a powerful antiseptic, depletes the congested uterine vessels, is a sedative to the terminal nerve endings in the uterine mucosa, sets up a healthy metabolism and tones up and invigorates the uterine appendages.

Illustrative Case.—A married woman, aged thirty-two years, mother of three children, the youngest being three years of age.

Patient had suffered, since the birth of her youngest child, with excessive hemorrhage at her monthly periods, which were irregular, varying from two to six weeks and again being quite regular for several months. Her appearance was somewhat pale but not anemic. She had been unable to attend to her household duties for some time and was usually confined to her bed for two or three days at the time of each menstruation. She had been under the care of a capable physician and had received local treatment as well as tonic medication without benefit. Examination revealed a prolapsed and retroflexed uterus, the vagina was relaxed and excessive leucorrhea was present. She was at once put on the intrauterine zinc-amalgam treatment. The cervix, like all the other tissues, was very much relaxed and a large olive easily passed to the fundus. A current of twenty-five milliamperes was used and gradually increased to forty within a few days. Treatment was applied to every part of the interior of the uterus for four minutes followed by the induced current to the limit of endurance three times a week. Three weeks later the flow was less in quantity but lasted six days. For the next three weeks treatment was continued with a current of thirty-five milliamperes. Menstruation was normal and lasted five days. Examination at this time showed the uterus much reduced in size, but still retroflexed, and slight leucorrhea existed. The treatment was followed on the same plan twice a week for three weeks more (in this case wool tampons well soaked in glycerine were used and a hot carbolized douche given before each treatment), when she was dismissed with orders to report a month later. She did not do so but sent word two months later that she had entirely recovered.

DEDUCTIONS.

(1) That electricity properly applied will always relieve pain.

(2) That it will lessen excessive discharges.

(3) That it will increase the menstrual flux if deficient.

(4) It is sedative, astringent, tonic, alterative, hemostatic or congestive according to the pole in action.

(5) That it fills every indication in the treatment of derangement of that important function—menstruation.

THERAPEUTICS OF THE NITRITES.*

By DELOS L. PARKER, M. D., Detroit, Michigan.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

UNDER this heading the writer will consider briefly the diseases in which the nitrites are indicated and afterward will go outside the strict limits of the title and say something of the mode of administration of these medicinal agents.

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*Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

The principal nitrites used therapeutically are amyl nitrite, nitroglycerine, sodium and potassium nitrites. These in their physiological actions differ but little from each other; yet for all this amyl nitrite and nitroglycerine have come to be the ones usually employed. The point in which they differ is chiefly in respect to the time required to get the physiological effects and also in respect to the length of time these effects continue.

The beginning and the end of the action comes soonest when amyl nitrite is administered by inhalation. Both come a little later when the same drug is administered by the subcutaneous tissue or by the stomach. Both the beginning and end of the effect is further postponed if nitroglycerine is used, and still further if sodium or potassium nitrite is the salt employed.

The most important physiological effect from the administration of this class of drugs is a dilatation of the arteries and arterioles of the whole body. This effect is one that never fails; though its degree will depend on the size of the dose of the drug and in some cases on idiosyncrasy of the patient. The arterioles are more affected in this respect than are the arteries.

The nitrites produce this dilating effect, not by action on the nervous system or vasomotor centers, but by direct action on the vessel walls themselves. Authorities agree that it is the blood and the muscles that are chiefly affected by these drugs and as these two substances are in the closest relationship in the arteries it is here that the principal effect takes place.

Other effects from large doses of the nitrites are the following: Reflex excitability of the spinal cord is diminished, but the functions of the brain are exalted temporarily. The latter is due to the increased quantity of blood in the dilated vessels of the brain. The action of the heart becomes fast and weak owing to the lightening of its load by the fall in the blood pressure in the arteries. Oxidation is interfered with so that if the dose of the drug is very large the arterial and venous blood have the same dark color. Temperature is lowered, partly on account of the lessened oxidation, and partly on account of the increased radiation of heat from the somewhat reddened surface of the body.

The subjective symptoms of a patient under the influence of a nitrite are a sense of fullness of the head, flushing of the face, throbbing of the temporal muscles and often headache, dizziness and confusion of mind. Sometimes also there is a sense of general muscular weakness. These more severe symptoms are due either to overdose of the drug or to idiosyncrasy of the patient.

Of all these effects, subjective or otherwise, the one of chief importance to the physician is that which affects the arterial system.

Of the others, excepting possibly the one that lessens the excitability of the cord, practically no use is made and, generally speaking, it can be said the physician is more concerned in avoiding than he is in producing them.

Passing to the diseases in which the nitrites are indicated we find at the head of the list angina pectoris. Here the inhalation of the vapor of two or three drops of amyl nitrite generally relieves at once the agonizing pain and sense of impending death, so characteristic of this disease. Those subject to attacks of this dangerous and distressing malady should never be without a supply of amyl nitrite on their persons. Glass pearls containing two or three minims of the drug are probably the best form for carrying in the pocket.

Asthma of a purely spasmodic character is another disease that is readily relieved by the inhalation of amyl nitrite or by the administration of a nitrite internally. Difficult breathing due to emphysema, however, is made more distressing by exhibition of the nitrites.

Epilepsy is another disease of this list and a paroxysm of this disease can often be warded off entirely by use of a nitrite, provided an aura exists of sufficient duration to let the patient get the effect of the drug before the spasm comes on. It is supposed that a vasomotor spasm of the cerebral vessels is the beginning of a convulsion of this nature, and the dilating effect of the nitrite prevents this from developing.

A curious application of the effects of the nitrites is sometimes made in diagnosing tobacco amblyopia. In this disease these drugs cause a temporary restoration of vision, so that in dimness of sight, when this disease is suspected, this fact can be made of great diagnostic value. Cardiac asthma, that distressing dyspnea that so often complicates advanced organic disease of the heart, can usually be relieved quickly by one of these drugs. Care must be taken here, however, to have the dose small and the effects watched closely.

When contraction of the arteries of arteriosclerosis becomes distressing, particularly when the sclerosis is dependent on some form of Bright's disease, a nitrite should be given in sufficient quantity to produce its physiological effect, and this effect should be maintained by frequent repetitions of the dose until improvement becomes permanent or until some other drug, which has a dilating effect on the arteries, such, for instance, as potassium iodide or opium, can have time to take its place.

According to Bartholow, anemia and even the pernicious variety of this disorder clearly indicates the administration of the nitrites. This rule in treating this condition is to correct any digestive or other functional or pathological state that may interfere with the health of the patient, and then give one of the nitrites for the purpose of dilating the arterial system and thus providing a freer circulation of blood throughout the system. His own reports of the success of this plan are very satisfactory. **Bompiani**, a physician of Rome, recommends this same use of the nitrites for anemia following extensive hemorrhage.

There are a number of other conditions or diseases which call for the use of these drugs. Among them may be mentioned neuralgic dysmenorrhea, also hourglass contraction of the uterus, if this has been caused by ergot. The nitrites and ergot oppose each other in their actions in every particular.

Ordinary fainting, due as it is to anemia of the brain, affords an opportunity of noting the quickness with which a nitrite acts. The inhalation of the vapor of a drop or two of amyl nitrite, or the absorption from the tongue of a minim of a one per cent. solution of nitroglycerin will rouse a person from ordinary syncope, as if he had received an electric shock.

The muscular spasm of strychnine poisoning, tetanus, hydrophobia and hysteria may often be much relieved by use of these drugs. The good effect here is due to the power the nitrites have of lessening spinal reflex action and relaxing muscular spasm.

In the administration of the nitrites no exact period of time can be given, at the expiration of which the dose must be repeated in order to keep up the action. The authorities say that the effects last usually about two hours. They must refer to laboratory experiments rather than to actual medical practice. All of us certainly have seen the good effects of these drugs continue much longer than this. The action of these drugs is so prompt, however, and the effect so regularly beneficial that the time for a repetition of the dose will be clearly indicated, regardless of whether the interval be measured by hours or days.

The size of the doses of the nitrites is a matter of much importance. The usual custom of administering amyl nitrite by the inhalation of the vapor of two or three minims of the drug, is in every way satisfactory. With the ordinary methods of administering nitroglycerin, however, fault can be found. Practically everybody says begin with one one-hundredth of a grain of this drug and increase this gradually as may be necessary to get the desired effect. Now, in the experience of the writer one-half this dose has over and over again relieved the cardiac asthma, or other condition for which it was prescribed, and with almost complete avoidance of the headache and other disagreeable symptoms. Physicians have reported satisfactory results from the use of nitroglycerin in doses of one one-thousandth of a grain.

Besides securing satisfactory results without disagreeable symptoms, there is another reason why the beginning dose of nitroglycerin should be small. Tolerance of the drug comes on quite rapidly, and so when it has to be given for a long time, as in arteriosclerosis, the smaller the beginning dose the greater the chance to increase it, and still to keep within reasonable limits. **Shoemaker**, in his "Materia Medica," speaks of a case in the practice of **Doctor Reading**, of Woodbury, New Jersey, wherein a woman suffering from interstitial nephritis began taking nitroglycerin in doses of one one-hundredth of a grain, and in less than one year had increased this amount so that she was taking six grains at a dose. He adds also: "The symptoms of the disease were by this time apparently cured."

Another feature in the administration of the nitrites with which the writer feels he can find fault, is the common custom of combining in a pill or tablet nitroglycerin with digitalis, and other heart tonics. This seems to be wholly unscientific and illogical. The effect of the nitrite comes on at once, and may have to be repeated in two, three, or four hours. The effect of the digitalis cannot be looked for until hours have passed by, and it cannot be repeated at frequent intervals. Again, the nitrite may be alone sufficient to correct the trouble. If it will do so, the physician has escaped the danger of having the digitalis do damage to the cerebral vessels, a danger always present when the arteries are in an atheromatous condition. If the physician can get along without the digitalis he can also get along with smaller doses of the nitrite, for the reason that digitalis always exerts considerable influence in contracting the arteries.

If a horse should have difficulty in drawing a load over a stretch of road covered with stones, a common-sense driver would clear away the stones if he could, and then see what the horse could do on the unobstructed way. If he found he did not get along very well, he then probably would give what assistance he could by himself pushing behind. Why not follow these same tactics when a heart is finding difficulty in forcing blood through a contracted arterial system? First, remove the obstruction by dilating this system, and then if sufficient relief is not secured, push behind by giving a heart tonic.

In the case of a horse and a rocky road it is possible an occasional driver might pay no attention to the condition of the road, but immediately summon assistance and crowd the wagon over the stones, regardless of the damage that might come from such a course of action. Such a driver would find a congenial companion in the physician who, in treating a disease complicated with an embarrassment of the circulation, would pay no attention to the arteries themselves, but would depend entirely on some heart tonic, such as digitalis, to develop force enough to crowd the blood, rough shod, so to speak, past all obstruction.

559 Jefferson Avenue.

TRANSACTIONS.

DETROIT MEDICAL. AND LIBRARY ASSOCIATION.

STATED MEETING, FEBRUARY 12, 1900.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR DELOS L. PARKER read a paper entitled "Therapeutics of the Nitrites." (See page 238.)

DOCTOR F. L. NEWMAN: DOCTOR PARKER seems to have covered the ground very thoroughly as to the therapeutic uses of the nitrites. As to the custom of combining digitalis and nitroglycerin in the same tablet, I agree with him that it is not good practice. It seems to me that the mistake with many physicians in administering the nitrites is to consider them as cardiac stimulants. It is understood at the present time that they possess no stimulating action on the heart. The principle is that they take away the resistance in front. Some of the points brought out by the doctor with reference to the nitrites in the various diseases were very interesting and new to me, particularly the effects of the nitrites in the treatment of epilepsy. That point had not been stated before, I believe. The effects of nitrites in hysteria are sometimes remarkable. I recall one case which came under my care. Everything had been done in this case. The lady was extremely violent and had what was termed by her friends "attacks of unconsciousness,". and on awakening would become exceedingly violent. In that case I gave her one one-hundredth of a grain of nitroglycerin hypodermically, and the symptoms vanished as if by magic. Evidently anemia of the brain was accountable for her conditions. One of the therapeutic uses to which I have put the nitrites is to administer nitroglycerin to counteract the effects of internal congestion produced by cold as taking the place of Dover's powder, and the results have been very satisfactory. A writer says, in a recent work, that although it dilates to some extent the arterioles it has absolutely no effect on the kidneys or on the skin, and recommends that it be struck out of the pharmocopeia altogether.

DOCTOR W. S. ANDERSON: After listening to the paper and DOCTOR NEWMAN's remarks it seems to me there is little left to be said. I have had a little experience in the use of the nitrites, employing them principally in spasmodic asthma, but even in that disease I prefer potassium iodide, as a rule. I have used nitroglycerin too in arteriosclerosis, but I believe the more permanent drug, potassium iodide, continued for a long time, is much more serviceable than any of the nitrites. The point the doctor makes in regard to the small doses of the nitrites I think is very well taken, and also the inadvisability of combining them with the heart tonics.

DOCTOR CARSTENS: The only occasion on which I use nitroglycerin is in case of shock following operations, but I have always had considerable doubt as to the efficacy of this drug when there is congestion. I have not used much nitrite of amyl, but in cases of angina pectoris I believe it may be used with advantage. It has just occurred to me that a few years ago some man down in Illinois strongly recommended the use of nitrite of amyl in chloroform narcosis, and advocated adding half a dram of nitrite of amyl to every pound of chloroform. He claimed that if given in that way there would not be any deaths from chloroform anesthesia. I never took any notice of it and consequently never tried it.

DOCTOR W. R. PARKER: The only cases in which I have used the nitrites are those of tobacco amblyopia, and then they were only employed as an aid to diagnosis.

DOCTOR MCKEAN: In regard to the relief of congestion by the administration of nitroglycerin instead of stimulants, I find it relieves this condition quicker than aconite or the aromatic spirits of ammonia. I give very small doses. I have not found it of any value in the ordinary commercial tablet. Doses of one two-hundred-and-fiftieth of a grain in granules have given me good results.

DOCTOR DELOS L. PARKER: In regard to the unreliability of the tablet, I have never had this experience. I use Fraser's tablet and generally get the effect quickly, administering one two-hundredth of a grain at a dose. The object of the paper was a plea for the more general use of the nitrites.

STATED MEETING, FEBRUARY 19, 1900.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. MCEWEN, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR CHARLES DOUGLAS read a paper entitled "Infantile Nephritis." (See page 217.)

DOCTOR DONALD: I can only express my praise for the immense amount of research done by the essayist and the exhaustive character of the subject under discussion, as evidenced by the paper. The method of securing urine, as referred to by DOCTOR DOUGLAS, is a new one, and certainly is not difficult of application.

DOCTOR HERZ: I wish to say a few words in regard to the etiology of the disease. In cases of apparent primary acute nephritis certainly there are some which follow an acute infectious disease, especially scarlet fever, wherein the exanthema has been overlooked. Cases of that kind have been ascertained even in epidemics, where, in some instances only by the appearance of the acute nephritis, the connection of a foregoing indisposition coincident with the epidemic can be stated. Concerning cases of chronic nephritis, it is to be remembered that there is a skin disease, prurigo, very much spread among children, which is treated with tar preparations. Because prurigo appears and disappears the treatment with the tar has to be repeated, sometimes very often. Certainly in most cases urine is tested, but sometimes it may be forgotten, and then the right treatment is overlooked, and later, perhaps after a long time, chronic nephritis is detected. This case then seems to be a primary chronic nephritis because the treatment of prurigo is not more remembered. Cases of chronic nephritis after hereditary syphilis and tuberculosis seem not to be simple nephritis but amyloid degeneration.

DOCTOR IVES: I was impressed by the good results DOCTOR DOUGLAS obtained in giving dilute cream and the poor results in giving beef tea. I think cream diluted will be borne by the stomach when nothing else will, whereas beef tea will be borne perhaps as poorly as any other preparation. We have tested the different samples of beef tea in the medical laboratory, and there is nothing in them but some forms of urea. I believe dogs fed on beef tea will die quicker than dogs not fed at all.

DOCTOR SHERMAN: DOCTOR DOUGLAS' paper is a very good one, and illustrates the necessity of proper feeding in cases of acute indigestion. Now, taking these cases of acute indigestion, I think that the best plan of treatment is to give plain boiled water until the digestive apparatus has had sufficient rest, so that when food is again given the child shall be able to digest it. In these acute cases we have fermentative disturbances and absorption of ptomains, and I find that when you give them nothing but water for a few days you need almost no other treatment.

DOCTOR DELOS L. PARKER: I would like to ask whether, in cases of infantile nephritis, hereditary syphilis is given as a predisposing cause. In later life it is a cause, and it occurred to me that in cases of infantile nephritis it might also be considered a factor.

DOCTOR DOUGLAS: I do not use any of the manufactured beef tea preparations. In each case those used were made at home. In regard to what DOCTOR IVES says about the qualities of the beef teas put up by the manufacturers, I am not competent to say exactly what the benefits of them are. He is rather hard on the manufacturers when he says they contain nothing of a nutritive value. My practice has been to avoid prepared foods of all kinds, because I believe their use is a very serious mistake. I object to them on the same principle that I would object to any one making my biscuits or my bread except as they are made at my own home. All nitrogenous foods deteriorate with age. The food used in all these cases was entirely homemade. As regards dogs that are fed on beef tea, I think DOCTOR IVES is shooting at long range. It has been proven that dogs will die on beef tea diet alone. It is not proven that they will die on that more speedily than on water. As remarked, in the treatment of one patient I used the cold water extract of beef tea, but it acted too freely on the bowels. There was too much proteid in it; the child could not digest it. I therefore had to abandon it for the warm water extract. The question of hereditary syphilis as a cause has been brought up. One writer ascribes that as a cause of infantile nephritis.

DETROIT ACADEMY OF MEDICINE.

STATED MEETING, MARCH 27, 1900.

THE PRESIDENT, GEORGE DUFFIELD, M. D., IN THE CHAIR.
REPORTED BY H. D. JENKS, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR WALTER R. PARKER read a paper entitled "The Use of Ethyl Bromide as a General Anesthetic." (See page 232.)

DOCTOR CHITTICK: I was gratified with the exhibition of the use of bromide of ethyl which we have just had. My only experience with it was upon a kitten, when the drug was first talked about in my student days. The drug was taken from the shelf of a druggist, and there was no knowing how old it was. The kitten promptly died. At the postmortem the stomach was found filled with food. Possibly this had something to do with the death.

DOCTOR MAIRE: I, too, was interested in seeing the drug used. The thing I noticed about it was that the laryngeal reflexes were not dulled. This would make it safe to use when the pharynx is to be operated upon, as the clots would be expelled because of their irritation. It is valuable because of the short duration of the anesthesia. Its application is general when a trivial operation is to be done. There is no question but it can be well used in ophthalmic work. It was formerly used in pharyngeal operations, especially for adenoid work.

DOCTOR DELOS L. PARKER: It seems to me that much can be done to avoid the use of the classic anesthetics in operations, especially by the substitution of local ones. Long operations seem now to be done by the use of ethyl chloride and cocaine. I use, for example, in circumcision, carbolic acid for the skin and cocaine for the mucous membrane. Statistics in regard to the dangers of anesthetics seem to me to be unreliable. Chloroform, if it kills at all, does so on the table, while ether kills a week or two later through the kidneys or lungs. I do not know much about the use of ethyl bromide, yet it seems to be given easily and the patient seems to take it easily.

DOCTOR ROBBINS: Bromide of ethyl seems to have a place as an anesthetic, but because so easily given we might be tempted to use it out of its place. In gynecology it might have a place in examining a sensitive woman, but it seems as though it would hurry the examiner too much to do careful work. I cannot see how it would be useful in obstetrics. Its use certainly in my work would be very limited.

DOCTOR WALTER PARKER: This illustration given tonight was unsatisfactory. The pulse rate seems to have increased some from excitement of surroundings. I have seen muscular rigidity only once or twice before. It was unfortunate to crowd it as was done, as it required almost twice as much as should have been used. I have used it a hundred times and believe it as safe as any anesthetic. All anesthetics will have a certain mortality.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, DECEMBER 18, 1899.

The President, GEORGE A. KIRKER, M. D., in the Chair.
Reported by WALTER J. CREE, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Peter M. Campbell read a paper entitled, "Electricity in the Treatment of Menstrual Derangements." (See page 235.)

Doctor Jenks: Electricity in the treatment of diseases peculiar to women has experienced a process of evolution. A number of years ago great things were claimed for electricity and nearly every disease was pronounced curable by the use of that therapeutic agent. It was even said that cancer could be cured. In the treatment of fibroid tumors electricity is sometimes used with success. It is undoubtedly useful in certain cases when employed intelligently. In the class of cases mentioned by the essayist the static form is useful in relieving pain.

Doctor Summers: My experience with this agent has been rather limited. It would seem to me that many cases of amenorrhea might be treated in a satisfactory manner with it, yet I have obtained good results from the employment of other remedies.

Doctor Metcalf: I have used electricity for several years with fairly satisfactory results. I have found that a large sponge electrode placed over the abdomen will blister with thirty-five milliamperes, and I generally use about thirty.

Doctor Hislop: I have had no experience with static electricity but have used the galvanic current in amenorrhea with good results.

Doctor Stevens: I should like to know if the doctor uses electricity in these cases independent of other remedies.

Doctor Bell: Those physicians who can enjoy the luxury of equipping their offices with an electrical apparatus and give it attention can get good results. I consider static electricity the best for functional disturbances. Electricity is a powerful adjuuct in some cases, holding the patient's attention while other remedies are used.

Doctor Campbell: In regard to the strength of the current, the more a man uses electricity the stronger current he will use. Failure in treatment is often due to a weak current. With the average faradic coil that is used, I am not surprised at negative results. When the pain is intermenstrual I apply a current over the entire lower abdomen to affect the pelvic organs. In regard to the inquiry as to whether this treatment is used exclusively, I will say that proper attention is paid to diet, exercise and hygiene the same as in treating all cases. Other treatment is used when indicated.

EXHIBITION OF SPECIMENS.

Doctor William F. Metcalf exhibited a renal calculus three and one-half inches long and one and one-half inches in thickness, which he had removed three days before from a patient who had been suffering from pain in her side for twelve years. During the last three years the pain had been severe, at times paroxysmal and following the course of the ureter. She also suffered from frequent and painful menstruation, but says that she never passed blood with the urine. She is anemic and shows almost constant rise of temperature. Her urine was normal in quantity but contained pus and renal epithelium; its specific gravity was 1018. Examination by Harris' apparatus showed a large quantity of pus from left ureter, very much less from the right. Catheterization of right ureter showed that the inflammation had extended into it from the bladder wall. Symptoms of shock were marked while traction was being made upon the kidney but she quickly rallied and is apparently making a satisfactory recovery.

TRANSLATIONS.

MEDICAL CUSTOMS IN THE UNITED STATES.*†

By DOCTOR EECKMAN, Brussels, Belgium.

[*Presse Medicale Belge.*]

Translated by JOHN R. ROGERS, B. S., M. D., Grand Rapids, Michigan.

In order to enter the medical arena in the United States it is not neeedful to know how to decline "rosa," nor to be able to write the Greek alphabet; it is simply necessary to know how to read, write and figure in English. As to the required age, only the age of reason is required; medical students of fourteen years rub elbows with old men, who seem to have come to take their seats on the University benches to study medicine with the sole object of practicing it on the other side of the Styx.

The law demands three years of study, each of which is followed by an examination held by the professors of the school at which one is studying. Each academic year comprises a course of six months, from October to March, so that the students during the summer season have opportunity to fill the positions of clerk, accountant, salesman, nurse, et cetera, and to earn the dollars which will enable them to again take up their studies the following winter. To render this still easier the first year course is given generally in the evening, which allows the students to retain their commercial or other positions during the whole of the first year. The course of three years is reduced by one year if the student can produce a certificate of graduation from a high school or college. This reduction is also granted to a student who can bring a certificate from a physician stating that the bearer is his assistant.

There is at present a tendency in some of the states, in New York

*Read before the Grand Rapids Academy of Medicine.

†This translation does not reproduce Doctor Eeckman's article in its entirety, some paragraphs of no particular interest being omitted.

for instance, to increase the number of years of study to four. You can conceive from what I have said that the scientific equipment of the physician in the United States is generally light and superficial. In order to remedy this state of affairs, for by a providential provision of nature the remedy is generally found near the evil, it happens that a great number of young physicians go to perfect themselves in England, in Germany, in Austria or in France. On the other hand there exist in the United States a number of postgraduate schools, which means that there are for physicians some optional courses, practical as well as theoretical, upon medical subjects. These courses are given during the summer months while the regular students are having their vacation. There is thus a large number of physicians who in their dull season take their flight for several weeks to the University to plunge once more in the comforting scientific effluvia of their old teachers, or of others if they prefer it. They put themselves thus in touch with all the medical, surgical, and obstetrical novelties, and can perfect themselves in their weak points of practice.

In order to establish a medical school, called a University or College, which has the right to confer diplomas of Doctor of Medicine, it is sufficient that five doctors of medicine present a collective request to the government of their State in order to obtain its permission. If the State should refuse it, the five physicians could attack it in the courts. The judge would always decide in their favor, providing they were legal practitioners.

The allopathic and homeopathic physicians generally form well organized and successful colleges. The studies are absolutely the same as in Europe excepting that, in general, abstract calculations and equations, historical and prehistoric theories are suppressed, leaving only the practical and current theories. The theoretical courses are all given from beginning to end in the form of questions and answers, which do not betray a scholarly origin, but fix themselves more easily in the memory. In all questions the professors lay much more importance on practice than on theory. I must say that, thanks to these methods of teaching, and taking into consideration the short period of the six months course, these colleges have a relatively very complete curriculum.

I have now come to the nomenclature of the different schools. In the first place there are the homeopaths and allopaths. I suppose we all know the characteristics of each of these two schools. The third school, third at least in point of number of its adherents, is the "Christian science." You have probably heard reference to it. It is what could be indulgently called a school, and I will call it the "nihilism of morbidity." Its principle is in substance as follows: God is infinitely just and infinitely good; he cannot then permit sickness, except for the good of those to whom he sends it, that is to say, that they may escape other evils after death. "Now," they say, "this expiation of our faults can be accomplished by repentence and prayer, and as soon as we have prayed sufficiently to redeem our sins, our diseases will disappear." The sick are kept in their institutions with a bible for each bed, this being the only reading allowed them. Moreover, several times a day the healer (?) who is a protestant pastor combining in his person the titles of Doctor of Medicine and Doctor of Theology goes about demonstrating to the patients that they are about to be cured and so forth. It is religious suggestion, pure and simple. This is the only means that they employ as they disbelieve in drugs.

The next system, named osteopathy, is formed upon an entirely different basis, the following being their reasoning: If the human organism is deranged it is because there is somewhere an impurity, like a grain of sand in a clock causing it to run imperfectly. We must therefore first dislodge the intruding object, and then expel it from the system, and this is how they go about it. They make a deep massage down to the bone (hence their name of osteopaths, which, by the way, is not well found; but they are not up in the dead languages), and this deep massage is supposed to dislodge the intruding object, and is followed by copious sweating under blankets and by abundance of drinking water, in order to rid the system of impurities through the emunctories.

Another system also dispenses with drugs and uses electricity in all its forms in the treatment of disease. Still another uses herbs only, rejecting the use of alkaloids and other chemicals.

Finally another class of physicians limits its therapeutic arsenal to animal products, serums and triturated organs being administered in all possible ways.

In the United States, in medicine as well as in industry, specialism is pushed to its limits. There are specialists who treat only hemorrhoids, others hernia, others varicocele, others treat only renal diseases or only diseases of the heart. They are generally successful men.

There is a specialty which takes well in the United States, and is unknown here, that is "orificial surgery." As the name indicates, these specialists treat only the nose, mouth, rectum, vagina and urethra. A varied and somewhat incongruous combination. Happily for the patient antisepsis is nowadays very rigorous and well carried out in the United States.

Surgery is as well represented in the United States as its sister science, Medicine, is badly represented. I have seen operations in Belgium, Germany, Switzerland and Italy, and I must say that in general, from the view-point of the operation itself, the Americans are astounding. They have all the natural qualities required of good operators; they are very intelligent, are afraid of nothing, have imperturbable nerve and great ability. I have seen SENN in Chicago do three double ovariotomies, a thigh amputation, a disarticulation at the shoulder, all in sixty-eight minutes. It will be only just to say, however, that his equipment in the County Hospital and his well drilled and experienced assistants are of great use to him in saving precious time. A seance like this one gives the impression of a good butchery, properly done. In all the Chicago hospitals, and in all those of the majority of other cities in the United States, the patient is chloroformed in his bed, then brought to the operating table. In the greater part of the gynecological polyclinics, where there is an audience of students, a curtain separates into two parts the examining table so as to hide the upper portion of the patient. She is then only known to the professor and one assistant. The professor told me that they must deal gingerly with the modesty of the patient.

The weaker side of the American surgeons, generally speaking, is the diagnosis. I have often heard it said in the hospitals, "this is an obscure case; we will open it up to see what the trouble may be." Identical cases in our own universities would be diagnosed before operating. Moreover, their operating mania, which, it is true, gives them extraordinary ability, makes them forget the beauties of conservative surgery.

As to the relations between doctor and patient. The doctor is considered simply as a "business man," that is to say, one that looks carefully after his finances. Many patients ask beforehand what they will have to pay, and if the price demanded seems too large, they take their hat and make their adieus. Others, less bold ones, send a relative or friend to submit the case and discover what fee will be charged. Many physicians on the other hand, demand payment before giving the least service, or before going out of their house to make a visit. Such proceedings may seem strange to you, but it is readily understood that they are to the interest of everyone concerned, and it is easy to grow accustomed to them. Bookkeeping is thus greatly simplified, and "clear accounts make good friends," in America especially.

If the physician in the United States does not enjoy the same consideration as in Europe, it is solely his fault. The patient can soon see with what sort he has to deal with, and put himself at once upon the same level with him, for the American has a great deal of pride, and hates to see himself dominated. The American physician who respects himself and respects others is as highly considered as the European, I may even say more highly considered, for being an exception, he makes more of a contrast.

That which diminishes the esteem of the American people for its physicians is in the first place, the incapacity of some, and secondly, the roughness of others toward their patients. Another plague which is widespread among physicians is alcoholism, morphino-mania, cocainism, et cetera. I have never been able to understand how a physician, who knows the consequences of these abuses and of these habits, can have so little will power as to allow himself to be drawn into them. The percentage of such is so great that I would not dare to determine it.

Finally, another cause of the lack of regard in which physicians are held is the quarrelling among themselves. I must add, however, that there are a great number of physicians who are self-respecting, respect their colleagues, and are highly esteemed by the public.

There is a class of physicians who announce that they demand payment only on effecting a cure. "No cure, no pay." You will understand that this is but a bait for the numerous simpletons who compose the public, for an American will never work for love alone. Their proceeding is as follows: The doctor sets on the cure a price which is generally large, but in case of an unfavorable prognosis, is exceptionally so, in order to be rid of the patient. If the patient objects to the price, and if the doctor sees in him a curable case, he will try to demonstrate to him that in guaranteeing an absolute cure, he is entitled to a greater remuneration than those physicians who have not enough science, et cetera, to enable them to offer the same guarantee. The patient being convinced, the examination is begun. The urine, sputa, et cetera, must be examined; all this requires an expert, or rather a confederate, who must be paid at once, and the expert employed must be the one attached to the physician's establishment, because he wishes to be sure that the work is well done. When treatment is begun the practitioner has a miraculous remedy for the case, but as he has taken years to discover it he could not give it up in a prescription, therefore, the patient receives it direct from him, and pays for it willingly. After all, the patient is paying for his treatment as he goes along, and if cured the physician gets in addition the original sum agreed upon. This is only one of the frauds practiced, but there is no end to them. In commerce, in industry, in everything in the United States all are busy in getting up what they call "schemes."

A few years practice in the United States is very fruitful in instruction of all kinds, because the practical spirit and broad ideas are dominant, and constitute the superiority of the American.

We have all probably noticed that it is not always the brilliant student, passing the best examinations, who succeeds the best in practice, and why? An American would answer that it is because theory without the practical spirit is only good for making microphotographs of tumors, but will not cause the patient to make a second call upon the physician.

In order to succeed it is not sufficient to know by heart the names and the vaguest relations of the muscles, arteries and nerves which one will meet in operating; it is not even sufficient to know how to perform the operation, but what is necessary, and this is often what demands the greatest ability and diplomacy, is to know how to persuade the patient to have the operation performed, and to convince him that you are the man to do it.

It is sad to relate but it is so, we must obtain the confidence of the patient. It is in this that the American excels; he knows how to inspire confidence. He does not say very much, but on this account every word has so much more weight in the consultation.

The relations of physicians among themselves are maintained as in Europe. In the first place by the large official medical societies. There are besides these the private gatherings of some physicians who come together in the evening in the house of each member by turn. These gatherings are of an intimate nature, and all questions of interest to physicians are discussed there. Each one brings his quota and the discussions are very friendly and of broad ideas.

These physicians aid one another in spite of the fact that they usually occupy the same territory; if they find a consultation, a specialist or an operation to be necessary, they will always choose one of themselves, and will have no others; in a word they stand by one another like the Israelites.

You can conceive that the doctor in America has much heavier responsibilities than his Belgian colleague, but he is aware of them and surrounds himself with safeguards. He will not operate without several witnesses in the shape of assistants, for he knows that if he does without them he may be called upon to pay for his negligence. In the United States a judge can hang you up actually as well as figuratively, and sometimes in an arbitrary manner, for American justice is quite sensible to the flesh-pots. In every considerable city in the United States there are polyclinics, but far from being, as in Brussels, the working of the physician by the public, they are free only in appearance. To be sure, on the front of these establishments is a sign announcing free consultation. The patient comes to consult. This is free, of course, but there is a pharmacy connected with the institution where the patient will do well to get his prescription filled, because the said pharmacist is better used to filling the prescriptions of this particular physician; besides he has a particularly fine grade of drugs, and accurate filling of the prescription will be guaranteed. The patient follows these instructions, and after all it is the most practical way. If during the course of the consultation there is required any application or manipulation it must be paid for, for free consultation does not mean free operations. Surgical dressings must also be paid for. In the same way in the ophthalmological clinic, the patient pays for his glasses which he gets from the best optician in the world, who happens to be connected with this particular polyclinic. All these things bring large profits to the institution.

If the patient must remain in the hospital he will have to pay from $10.00 to $25.00 per week for lodging, board and dressings, so that as you see we can compare a Belgian polyclinic to an American one, as we would compare a fisherman with rod and line who gives up a fat worm to catch a lean fish (provided that the latter does not make away with the bait) to a fisherman with a net who, without sacrificing any bait, can at one stroke catch a multitude of gudgeons. In Chicago where there are nearly two million inhabitants, there is only one entirely free hospital, the Cook County, which is subsidized by the city and county. "In God we trust" is the motto of the great American people, but there is another one which, although it is nowhere written, dominates the whole country, and is put into practice by all; this is "nothing for nothing."

If any one renders you a service he will expect to be paid in one way or another. If you pay him back you will be able to obtain others, but if you do not you will get nothing more from him, for everything must be paid for. If a physician sends a patient to a specialist, the specialist will send him, in spite of his protests, at least a quarter of his fee in case of an operation, otherwise he may be sure that he will never get another patient from that physician. Americans find this entirely rational, and this is their reasoning: The general practitioner, in recommending a certain specialist, takes upon himself a part of the responsibility before, during and after the treatment. If the patient is not satisfied, and there are some who are never satisfied, this will be a reproach to the family physician either directly or indirectly, a reproach which will be directed against him every time he treats a member of that family. The family physician will therefore feel the responsibility of a failure, even more than the specialist himself, and as all responsibility must be paid, so must this one be paid.

EDITORIAL ARTICLES.

EXPERT TESTIMONY AND THE HAMBERGER CASE.

THE late trial of HENRY HAMBERGER in Detroit for the horrible murder of JOHN M. REINDEL had several noteworthy features. Although preceded by an admission of the crime it occupied the Recorder's Court full two months' time, cost the city about ten thousand dollars and was almost immediately followed by a nearly successful attempt at suicide by the criminal, whose sanity formed the grounds of the legal contest. The parts of the trial of most interest medically, and of great general interest as well, pertained to the prisoner's demeanor and the medical testimony relative to his responsibility for the deed.

In the face of what seemed to be a clear case the defense at once trumped up presumptive evidence of the murderer's insanity, which made it incumbent upon the Court to institute a preliminary investigation. There is no thought of criticism, and yet it is interesting to note that although mental incompetency is customarily passed upon in the Probate Court without delay, in the case of HAMBERGER a week was consumed in determining whether the trial in the Recorder's Court should proceed. This point having been settled at length, the trial opened with a detail of circumstantial evidence and an array of five expert medical witnesses for the prosecution and ten for the defense.

Without rehearsing the Court proceedings, which finally terminated in the conviction of the murderer and his sentence to the State prison at Jackson for life, the opposing testimony of the medical experts provoked such comment as to merit further notice. From the moment that the case came within the Court's jurisdiction the prisoner was mute, hung down his head and exhibited other signs of a mind of low order, which, associated with and reenforced by an antecedent history by no means auspicious, established in the minds of the experts for the defendant a belief in his insanity and irresponsibility. Moreover with that judgment a respectable share of public opinion agreed. But as the evidence of the prosecution was submitted the conduct of the accused took on a different aspect and opinions were expressed so discordant to the testimony previously given as to seem to warrant the public as well as the lawyers in taking a humorous view of expert testimony and of the medical prefession in general.

The difference between an ordinary and an expert witness should be always understood and never forgotten and yet the illiberal criticisms from those even who occupy the bench would seem to indicate that their mental atmosphere was sometimes rather hazy. The ordinary witness testifies only to facts within or under his own observation. The expert witness on the other hand does not of necessity testify to facts but simply gives his opinion based upon his own experience and in reference to facts observed and related by others. It is supposable that expert opinions relating to the same case should agree, and yet that they may at times diverge or be even contradictory may reasonably be expected since they emanate from different points of view depending upon differences in experience. If this be inconsistent how shall we reconcile with justice a reversal of a decision of a lower court by a higher tribunal? If it be irrational for different individuals to worthily hold contrary opinions why should there be lower and higher courts? Why should they not all be of one grade? It is not more usual to happen upon a medical expert whose opinions are wrong than upon a testamentary expert who fails to draw up a valid will. Moreover many differences in the opinions of expert witnesses are more apparent than real, and result wholly from the intentionally perverted hypothetical question on the part of one or both parties in the case. As a passive participant in the trial the expert is handicapped and at the mercy of the opposing council. The many difficulties that naturally beset the sifting of the truth are with a purpose multiplied to the shame of the witness and the defeat of justice. These criticisms which have usually been directed toward the medical expert are instead a reflection upon the profession of law, and are indeed cowardly attacks made as feints to cover up the glaring defects which it is the province of the law to remedy.

The case of HAMBERGER belongs to a class involving the greatest difficulties. As bodily diseases, particularly when feigned, often perplex the mind of the medical expert so much the more do mental states frequently defy detection and analysis. Although the obtaining of money furnished a motive and the criminal act evidenced plan and method, yet the apparent feeble-mindedness of the murderer before and after the deed was done and the careless lack of disguise before his arrest were strongly presumptive, it must be admitted, of an unsound mind and involved the analysis of mental workings of which the average critic has little conception.

ANNOTATIONS.

MEDICAL SCHOOLS IN THE UNITED STATES.

TO READERS of early history of medical education in this country the names of DOCTORS WILLIAM HUNTER, THOMAS CADWALLADER, WILLIAM SHIPPEN and others are more or less familiar. Their lectures were the first public attempts at medical instruction in the colonies, and were succeeded by the founding of the Medical College of Philadelphia, now the medical department of the University of Pennsylvania, in 1765 and by the organization of King's (now Columbia) college three years later. The first graduates were bachelors of medicine. In 1776 these institutions suspended operations on account of the war. According to Bulletin 8 published by the University of of the State of New York one other medical school was established before 1800. Twelve were established between 1801 and 1825, twenty-two between 1826 and 1850, thirty-three between 1851 and 1875, and eighty-six between 1876 and 1900. Of these one hundred and twenty-two are regular, twenty-one homeopathic, seven eclectic, three physio-medical and three nongraduate. There are also ten graduate schools. Of the medical schools eighty admit both men and women; sixty-nine admit men only; seven admit women only; one hundred and thirty-five hold day sessions; five have night sessions; nine have both; one hundred and fifty-two grant degrees; one requires a college degree for admission; twelve a four year high school course; three a three years'; twelve a two years'; ninety-seven a one year'; twenty-nine a common school; six have a nine to ten months' course; twenty-one an eight to nine; forty-five a seven to eight, and eighty-four less than seven, the average seven months. One hundred and forty-one maintain a four years' course; ten a three; two a two and two a one year's course. These figures are very interesting inasmuch as, while they show a rapid increase in the number of schools, there have also been great changes in the requirements for admission. At the rate at which schools have been multiplying during the last twenty-five years it would seem as though a college degree would soon and easily be a uniform requirement for admission. The competition of schools cannot have as damaging an effect, as concerns preliminary education, as might at first be supposed, on account of the registration laws which have been enacted in most of the states during the past few years.

THE NORMAL SALINE SOLUTION.

Too MUCH cannot be said or written of the benefit that may be derived from a generous use of the normal saline solution. In shock and hemorrhage, in septic conditions, in renal insufficiency, in the exhaustive fevers, in cholera and cholera infantum, and in fact in any prostrating diseases or conditions the venous, hypodermatic and even rectal use of the saline solution will often act magically as a life saver. Master the technique and be judiciously active and persistent.

THE BRITISH MEDICAL SERVICE IN THE WAR.

DURING our late war with Spain severe strictures were laid upon our own government for the confessed inadequacy of our medical service and the perfectly equipped British medical service was held up before us as an object lesson. Then Great Britain had gloriously finished her Soudanese campaign and was at peace. Now, however, the tables are turned. The *British Medical Journal* has repeatedly and even the secular papers have cried out upon the undermanning of the army medical service. The former journal declared the number of full-pay army medical officers to be insufficient for ordinary peace duties and regarded as necessary the reenforcing of the present number, 838 officers, by at least 200. With an army of 194,000 men in the field there should be provided 19,400 beds, whereas, according to the *Journal*, they had only some 5,000 or 6,000. These criticisms would appear to lend some weight to the report that Britain's resources were severely strained and to arouse more concern for the peace of Europe.

MEDICAL NEWS.

THE INDEPENDENT MEDICAL COLLEGE DIPLOMA WORTHLESS IN MICHIGAN.

On April 24 the Supreme Court of the State of Michigan handed down its decision in the case of People *ex-rel.* Richard Metcalfe *versus* the Michigan State Board of Registration in Medicine and therein dealt a death-blow to the hopes of every "graduate" from this irregular institution. In substance the Supreme Court decides that a medical college, to be deemed a medical college, must provide medical instruction adequate for the professional equipment of its graduates; that any course which does not contemplate this is a fraud upon the community; and that the possession of a so-called diploma from such an institution did not furnish the basis for a legal registration under the law of 1883–7. It certainly is a matter of congratulation to the reputable profession of medicine in Michigan that the State Board of Registration should score so complete a victory on the occasion of the first assault made upon the Chandler act. As a result of this decision, the occupation of Mr. Richard Metcalfe, of Saint Joseph, Michigan, like that of Othello, is gone in this state unless he is able to pass the examination required by the board.

A PECUNIARY STIMULUS TO ORIGINAL RESEARCH.

Inasmuch as no essay, which the trustees of the Philadelphia Academy of Surgery deemed worthy of "The Samuel D. Gross Prize of one thousand dollars," was received on January 1, 1900, the announcement is made that the said prize will be awarded on October 1, 1901. The testator annexed the condition to the will that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens." Other stipulations are: that the essay must be written by a single author in the English language; that the competitor who receives the prize must publish the essay in book form and deposit one copy of the finished product in the Samuel D. Gross Library of the Philadelphia Academy of Surgery; and that the title page of the work shall state that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery. Each essay must be distinguished by a motto, and accompanied by an envelop containing the same motto, together with the name and address of the essayist, and sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, in care of the College of Physicians, 219 South Thirteenth street, Philadelphia," on or before October 1, 1901.

MEDICAL REGISTRATION IN PORTO RICO.

A BOARD OF EXAMINERS in Medicine and Surgery, Dentistry, Pharmacy, and Midwifery has recently been established by the Board of Health in Porto Rico. Three medical men of at least ten years' practice, two graduate pharmacists, and one dentist compose this board. Its meetings are held in San Juan and all examinations are in writing. Applicants who hold diplomas from reputable colleges, or who have been licensed by any state board in the United States which requires an examination, are licensed without examination. The fee for physicians, dentists and pharmacists is $25.00; for assistants, or "practicants," as they are called, $15.00; for nurses, $10.00; for midwives, $5.00 This board of examiners does not issue licenses, but makes the examinations and forwards the markings with recommendations as to each applicant to the Board of Health for final decision and action. Every person desiring to practice must first present his or her diploma, certificate or application, accompanied by affidavits of two reputable persons as to good moral character, to the Board of Health, who will, if these are acceptable, authorize the applicant to present himself or herself for examination.

TEMPORARILY RECOGNIZED MEDICAL COLLEGES.

IN accordance with the power expressed in Section 3, Subdivision 5 of Act 237 of 1899 (see The Physician and Surgeon for June, 1899), the Michigan State Board of Registration in Medicine has approved and designated the following medical colleges, as institutions whose graduates are entitled to registration without examination:

1. University of Michigan, Department of Medicine and Surgery, Ann Arbor, Michigan.
2. Detroit College of Medicine, Detroit, Michigan.
3. Michigan College of Medicine and Surgery, Detroit, Michigan.
4. Rush Medical College, Chicago, Illinois.
5. Northwestern University Medical School, Chicago, Illinois.
6. College of Physicians and Surgeons, Chicago, Illinois.
7. College of Physicians and Surgeons, New York.
8. Cornell University, Medical Department, New York.
9. University and Bellevue Hospital Medical College, New Yor
10. University of Pennsylvania, Philadelphia, Pennsylvania.
11. Jefferson Medical College, Philadelphia, Pennsylvania.
12. Harvard University Medical School, Boston, Massachusetts.
13. Johns Hopkins University, Baltimore, Maryland.
14. Yale University, Medical Department, New Haven, Connecticut.
15. University of Iowa, Medical Department, Iowa City, Iowa.
16. University of Minnesota, College of Medicine and Surgery, Minneapolis, Minnesota.
17. Long Island Hospital College, Brooklyn, New York.

18. University of Michigan, Homeopathic Medical College, Ann Arbor, Michigan.
19. Hahnemann Medical College and Hospital, Chicago, Illinois.
20. Chicago Homeopathic Medical College, Chicago, Illinois.
21. Cleveland Homeopathic Medical College, Cleveland, Ohio.
22. New York Homeopathic Medical College and Hospital, New York.
23. Boston University School of Medicine, Boston, Massachusetts.
24. University of Iowa, Homeopathic Medical Department, Iowa City, Iowa.
25. University of Minnesota, College of Homeopathic Medicine and Surgery, Minneapolis, Minnesota.
26. Homeopathic Medical College of Missouri, Saint Louis, Missouri.
27. Eclectic Medical Institute, Cincinnati, Ohio.
28. The Bennett College of Eclectic Medicine and Surgery, Chicago, Illinois.
29. The Eclectic Medical College of the City of New York, New York.
30. The American Medical College, Saint Louis, Missouri.
31. The California Medical College, San Francisco, California.
32. The Lincoln Medical College, Lincoln, Nebraska.
33. The Physio-Medical College of Indiana, Indianapolis, Indiana.

MEDICAL GRADUATION EXERCISES.

The Michigan College of Medicine and Surgery closed one of the most successful years of its existence on April 24, by the graduation at the Detroit Opera House of the class of 1900, composed of twenty-three men and two women. At the conclusion of the lay address of the occasion by Reverend Charles B. Newnan, Doctor Lewis E. Maire, secretary of the faculty, read the formal roll call, and Doctor Dayton Parker administered the Hippocratic oath and presented the diplomas. The address on behalf of the faculty was delivered by Doctor Joseph A. Patton, of the college. The valedictory on behalf of the class was spoken by Edward Everett Sherrard. The recipients of the degrees were: Robert Mather, Martin H. Coan, Douglas L. Gordon, Ellsworth F. Brandon, Edward Everett Sherrard, Horace Byron Williams, Walter M. Boylan, Archibald W. Brighton, Adam McCoglan, Mrs. A. M. DeForest, Victor L. Garbutt, Frank Spencer, W. F. Bastendorff, Nicholas P. Greusel, Charles F. Johnson, N. F. Jacob, William C. Wylie, William W. Reno, William J. Stapleton, Jr., Robert Kirby, Roy W. Hodges, Mrs. B. H. Horton, H. F. Ralbie, John H. Neary. The banquet held at the Wayne Hotel in the evening was an occasion of professional and postprandial wit and wisdom.

GEORGE EDWARD FROTHINGHAM, M. D.

This eminent ophthalmologist died at his Woodward avenue home in Detroit, Tuesday, April 24, after a lingering illness. The doctor had been a sufferer from lung and heart disease for a long time, but the immediate cause of his death was Bright's disease. He was born in Boston, April 2, 1836, educated at Phillips-Andover Academy, and afterwards devoted some time to educational work. His medical education was received at the University of Michigan, from which he graduated in 1864. He immediately began the practice of medicine at North Becket, Massachusetts, where he remained three years. In 1867 he was called to the University of Michigan to accept the position of prosector of surgery and demonstrator of anatomy, which marked the beginning of his brilliant career as teacher and physician. After occupying this position for one year he was made demonstrator of anatomy, and in 1870 he became demonstrator of anatomy and lecturer on ophthalmology. In 1872 he was promoted to the professorship of ophthalmology and aural surgery and demonstrator of anatomy. Three years later his title was changed to professor of practical anatomy and ophthalmic and aural surgery. In 1876 his title was again changed to professor of materia medica and ophthalmic and aural surgery. In 1880 the scope of his collegiate work was enlarged by the addition of clinical instruction in ophthalmology, in which specialty he operated with a success that attracted the attention of his confreres not only in this country but abroad. Doctor Frothingham was the recognized father of ophthalmology at the University of Michigan, having been responsible for the divorcement of that branch from general surgery in 1870 and its ultimate elevation to a plane on a par with the other clinical departments. During his incumbency of this professorship a desire to afford his students wider opportunity for clinical instruction prompted him to advocate the addition to the curriculum of a year's clinical instruction in the hospitals of Detroit, a movement that engendered so much acrimonious controversy as to finally culminate in the doctor's resignation in 1889, after having served twenty-two years on the teaching force of the University. Immediately following his resignation he moved to Detroit and engaged in the private practice of ophthalmology and otology, which he pursued until incapacitated by the illness which resulted in his death. Doctor Frothingham was an active worker in medical societies and held various elective and appointive offices therein, among them being the presidency of the Washtenaw County (Ann Arbor) Medical Society in 1873; of the Michigan State Medical Society in 1889, having already been one of its vicepresidents fourteen years previously; of the Wayne County (Detroit) Medical Society in 1897. He exerted his influence to advance the medical profession in Michigan from an ethical standpoint, and especially by fostering professional medical journalism. As a writer he was clear and forceful, as his numerous contributions to medical literature testify. He was one of the editors of the *Michigan University Medical Journal* which was published in Ann Arbor from 1870 to 1873, and was likewise editor and proprietor of the *Ann Arbor Register* early in the eighties, during which time he undertook to purify the secular press by refusing to publish advertisements of quack nostrums. In 1860 he married Miss Lucy E. Barbour, of Gray, Maine, who survives him, together with four children, Doctor George E., junior, William B., Anna M., and Mary. Doctor Frothingham was a man of great force of character, unyielding in what he believed to be right, and leaves his personal impress not only upon medical history in Michigan but also upon the hundreds of students who listened to his lectures.

MINOR INTELLIGENCE.

Doctor Clark Davis has been recently appointed Health Officer of Cincinnati.

Efforts are being made to endow a chair to be known as the Brinton Professorship of American Archeology and Ethnology in the University of Pennsylvania as a memorial to Doctor Daniel G. Brinton, so long connected with that institution.

Professor Osler, of Johns Hopkins University, to whom the authorities of Edinburgh University, Scotland, had intended to offer the chair of medicine in that institution, is credited with declaring that he could not be a candidate for the vacancy.

Brooklyn's Health Department has commenced a crusade against the expectorators. Arrests have been made on the street cars and elevated roads for this practice. The penalty is a fine of from one hundred to two hundred and fifty dollars per spit.

The bubonic plague at Honolulu is now believed to have been arrested, as no new case has been reported since March 25. The cost of the extirpation of the disease will not be far short of $2,000,000. Of the seventy cases reported, sixty resulted fatally.

The Association of Military Surgeons will meet May 31, June 1 and 2, at the New York Academy of Medicine. Its membership is from the medical officers of the United States Army, Navy and Marine Hospital Service and the National Guards of the several states.

Reverend Alfred Young, M. D., of New York City, one of the founders of the Paulist community died on April 4. He was born in Bristol, England, January 21, 1831, and was graduated from Princeton University in 1848. He received his medical degree from the University of New York in 1852. After practicing his profession for a year he commenced study for the priesthood.

Trained nurses of both sexes are urgently asked for by Superintendent J. Greble, Assistant Adjutant General and Superintendent of the Hospitals and Charities at Havana. Their services are required in the hospitals and asylums in Cuba. The need of experienced help of this kind to rectify the deplorable condition in these institutions necessitated this appeal from Superintendent Greble.

William Conrad Roentgen, the discoverer of the X-ray was awarded the Bernard medal by the National Academy of Science at its recent session in Washington, District of Columbia. The significance of the award will be appreciated when it is stated that it is given but once in each five years to the individual whom the society regards as having made the most important scientific discovery during that period.

Christian scientists of Baltimore are enjoying the professional experience of being sued for malpractice. Readers of the First Church of Christian Science are defendants in a suit for $20,000 damages, entered by a man whose family subjected him to a course of treatment by these healers for three months. During this time his condition grew precarious, but he was later restored to health by a regular physician who was finally called into the case.

Among the prominent foreign medical men who have died recently are included: Doctor Jules Simon, of Paris; Doctor Taulier, of Avignon; Doctor Borysiekiewicz, professor of ophthalmology in the University of Gratz; and Doctor Berti, assistant professor of surgery in the Modena Medical School.

The Canadian Medical Association meets this year on September 12, 13 and 14, at Ottawa. As this will be the centennial meeting of this society special effort is being made to properly celebrate that event. Doctor Edmund Owen, of London, England, has been invited and will probably deliver the address on surgery.

Nicoli, an acrobat performing at a New York theatre, in undertaking a triple sumersault failed to complete the last turn and struck upon his head, dislocating one of his cervical vertebræ. At Bellevue Hospital an operation was performed to relieve the pressure upon the spinal cord, but the athlete did not survive the procedure.

The Ontario Medical Association meets in annual session in the Normal School buildings at Toronto, June 6 and 7. The subject which will receive the fullest consideration will be that of interprovincial registration, and it is probable that a movement seeking the securing of legislation with this object in view will be inaugurated.

Doctor Albert B. Strong, of Chicago, succumbed to exhaustion, following maniacal excitement, March 17, at the State Hospital at Kankakee. His affliction was believed to be due to losses from a bank failure. Doctor Strong served in the Eighty-fifth Volunteer Infantry during the civil war and was graduated from Rush Medical College in 1872.

The annual meeting of the TriState Medical Society (Illinois, Iowa and Missouri) was held at Saint Louis, April 3 and 4. The following officers were elected: President, Doctor Henry Hatch, Quincy, Illinois; secretary, Doctor W. B. La Force, Ottumwa, Iowa; treasurer, Doctor D. S. Fairchild, Clinton, Iowa. The next meeting will convene at Keokuk, Iowa, in April, 1901.

"Truth crushed to earth will rise again." An opportunity will be presented for Francis Truth, the "divine healer," to undertake to realize the fullness of this hope. At present the chances are rather against him, as he is under arrest in Boston for fraudulently obtaining money from a credulous people by his "divine" claims. On a "fraud order" twelve sacks of his mail have been seized by the postal authorities, the bulk of which contained remittances of $5.00 for the "absent treatment" which Truth advertised as a special feature.

Doctor John Ashhurst, Jr., who, since 1877 when he became professor of clinical surgery, has been connected with the medical department of the University of Pennsylvania, has resigned the John Rhea Barton Professorship, his resignation to take effect August 31 next. Doctor Ashhurst has gained distinction as a surgeon, teacher and writer, and the severance of his relations with this institution is sincerely regretted by the Board of Trustees. Doctor J. William White, clinical professor, will probably be selected for the vacancy thus created.

Christian science has been brought into court in Connecticut in a new aspect. Hitherto the disciples of this cult have been principally on trial for their indifference to public health in refusing to report cases wherein the patient had a "claim" of diphtheria, scarlet fever, or some other disease. In this particular case a life insurance company is defending itself against a "claim" of the beneficiaries of an insurance policy, basing its defense upon the refusal of a Christian science policyholder to submit to any medical treatment.

The annual report of Health Officer Henry H. Deys, of Springfield, Ohio, is made the occasion by that official of sounding a note of alarm regarding the decrease in birth rate. The doctor shows that with a population of 45,000 only 718 children were born last year. Of this number 216 births were credited to the 1075 Catholic families and only 502 to the remainder of the population. Had the same birth rate obtained among the nonCatholic as among the Catholic families, the births reported would have been 1808.

Doctor Adolph Zeil, of Berlin, was convicted in a German court last week of an unusual offense against the government, and sentenced to one year's imprisonment. The crime of which the doctor was found guilty was that of systematically treating young men so as to incapacitate them for military service by the administration of drugs to accelerate the heart's action. This artificially simulated heart disease secured the exemption of some 350 men before the doctor was suspected of this ingenious but irregular practice.

The need of the Chinese women for the services of women doctors was made the theme of an appeal by Mrs. Wellington White, a medical missionary from China, before the Ecumenical Conference in its recent session in New York City. During the course of her remarks she said: "Twenty years ago when I went into the province of Kwang-Tung there were 40,000,000 people there, of which 20,000,000 were women, and not a woman doctor among them, and the men would rather let their wives die than allow a man to cross the threshold to treat them."

On April 5 the New York Assembly passed the Davis-Hill bill for the establishment of a state sanitarium in the Adirondacks for the care of those suffering from incipient tuberculosis. A reduction was made in the appropriation from $150,000 to $50,000. The measure had the hearty support of Governor Roosevelt. Doctor John H. Pryor, of Buffalo, and Doctor Willis G. Macdonald, of Albany, are the medical representatives on the Board of Trustees. The site is to include one thousand acres to be purchased, and one thousand acres to be set apart out of state lands by the Preserve Board.

The Western Ophthalmologic and Oto-Laryngologic Association convened at the Planter's Hotel, Saint Louis, April 5, 6 and 7. The officers chosen for the coming year were as follows: President, Doctor M. A. Goldstein, of Saint Louis; first vicepresident, Doctor H. D. Wardemann, of New Orleans; second vicepresident, Doctor C. R. Holmes, of Cincinnati; third vicepresident, Doctor F. C. Ewing, of Saint Louis; secretary, Doctor William R. Ballenger, of Chicago; treasurer, Doctor W. L. Dayton, of Lincoln, Nebraska. Cincinnati was selected as the place where the meeting of 1901 will be held, the date being April 11 and 12.

RECENT PUBLICATIONS.

REVIEWS.

DISEASES OF CHILDREN.*

It is a real pleasure to see such a book as this. Whenever we see a beginner trying to get his first impressions of a special subject from a large work and verbose text, we pity him. If possible, the introduction to this or any other branch of medicine should be by a clear, clean cut and short method. This text furnishes the guide the beginner needs.

*By George M. Tuttle, M. D., Attending Physician to Saint Luke's Hospital, Martha Parsons' Hospital for Children, Bethesda Foundling Asylum, et cetera, Saint Louis, Missouri. In one very handsome 12mo volume of 374 pages, with five colored plates. Cloth, $1.50, net. Lea Brothers & Company, Philadelphia and New York.

PHYSIOLOGY.*

This is a text with which the thorough student will not be content; not that it is not well written and up-to-date will he look further, but rather to complete his knowledge of a subject of which he should know all. It is, however, a manual admirably adapted to teach the beginner the essentials of physiology, and to acquaint the practitioner with the advances in this subject.

*H. D. Collins, M. D., Assistant Demonstrator of Anatomy, and W. H. Rockwell, Jr., A. B., M. D., Assistant Demonstrator of Anatomy in the College of Physicians and Surgeons, New York. In one handsome 12mo volume of 316 pages with 153 illustrations. Cloth, $1.50, net.

GENERAL AND LOCAL ANESTHESIA.*

In spite of the frequency and comparative safety with which anesthetic agents are now used the occasional death and lesser symptoms of alarm that succeed are or should be constant warnings of the dangers for which we should be prepared. Experience in the induction of anesthesia may give confidence but it will never be a substitute for the utmost care. A knowledge of the proper use of ether, chloroform, cocaine and other anesthetics, their effects and accompanying dangers, such as this valuable monograph teaches, should precede the very first attempt at administration.

*By Aimè Paul Heineck, M. D., Clinical Instructor in Genito-Urinary Diseases, College of Physicians and Surgeons, Chicago; Clinical Instructor in Gynecology, Chicago Clinical School; Clinical Instructor in Surgery, Northwestern University Woman's Medical College. One hundred and twenty-four pages, $1.00. G. P. Engelhard & Company, Publishers, 358–362 Dearborn street, Chicago.

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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

ERYSIPELAS, AND ITS TREATMENT.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Is THERE a pathological process which by its onset, by its course, and by its termination, is characterized by such pecularities as will differentiate it from all other diseases, to which the name erysipelas may be given? A reading of the older standard works upon medicine will convince anyone that in their time at least the term erysipelas covered many conditions, such as the erythematas, et cetera, which are today classed as distinct conditions, not at all alike, but still similar to the disease we are considering. A glance at the current medical literature of the day will show that at the present time the term is many times applied to pathological processes not erysipelas.

With the advent of the germ theory of the causation of disease there comes a better understanding of these different processes, which is resulting in their separation from each other. I regard erysipelas as an entity with a subjective and objective symptomatology peculiar to itself, and that the disease is infectious, and always the result of a specific germ known as the Fehleisen streptococcus. I do not believe that the different conditions grouped under many descriptions of erysipelas are due to the Fehleisen coccus but are the result of the addition of another infection, septic in character, due to pyogenic germs.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

In no other way can I explain the occurrence of the condition of phlegmon so often used in descriptions of this disease. Erysipelas does not differ in this respect from other specific processes. Take, for an instance, the lupus lesion of the skin, a lesion due to the tubercle bacillus, when the breaking down of the lesion occurs, and we have pus forming, it results from the added infection by pyogenic germs. A pustular eczema is due to the same cause, the eczema rendering the part less able to resist infection by the staphylococcus; in fact I believe that most of the pustular lesions of the skin result in the same way and are not necessary to the development of the disease.

Erysipelas is an inflammation of the skin and mucous membranes. The time existing between the entrance of the germ and some manifestation of the disease is not known, but the incubation period is probably very short. Prodromal symptoms may precede the exanthema by twenty-four hours, and may be ushered in by one or more chills, with headache, anorexia, et cetera, or these symptoms may not be present at all, the lesion on skin or mucous membrane first attracting attention to the disease. This prodromal period and its symptoms have nothing peculiar in them to indicate that the individual is suffering from erysipelas. When the eruption is first noticed, it is a minute, single lesion, slightly above the surface, bright red in color, with a glazed or shining appearance, sharply outlined, with an irregular border. The lesion is tender to the touch, firm and decidedly hotter than the surrounding surface, and the color fades under pressure. The subjective symptoms are those of smarting or burning, rather than pruritus, and there is a feeling of tension. The disease spreads rapidly, until it may cover the whole of the face (the usual site of the disease), or an entire limb or more. The coccus finds its entrance through a traumatism made by the surgeon's knife, or accidentally, or as the result of some preceding pathological process, such as catarrhal inflammations of the fauces, or nasal passages, et cetera. There is decided elevation of the temperature during the whole course of the disease. In the mildest cases the process will reach its acme within a week or ten days, when the symptoms will gradually abate, and the disease end with a fine desquamation. As the redness fades it goes through a shading of reddish-brown to dirty-white color. With an increase of severity we have the formation of vesicles, or blebs, with contents of a sero-fibrinous character.

There is no doubt but that certain conditions predispose to an attack of the disease, yet I do not know that they differ in this respect from the predisposing causes of any infectious disease, but persons addicted to the use of alcoholic stimulants suffer the graver forms of the affection. These predisposing causes simply render the soil suitable for the ravages of the coccus when a traumatism, or pathological process presents a point of entrance for it. If the disease does not show amelioration within a week there is a probability of complications occurring that add greatly to the severity of the process. These complications as has already been stated I believe to be due to staphylococcic infection ending in pus formation. When this condition occurs it is most rapid in development. I do not know of any process that is characterized by so great and so rapid breaking down of tissues, and the production of such an amount of pus, as occurs when an erysipelas furnishes the field for pyogenic germ infection.

The Fehleisen coccus is readily found in all cases of erysipelas, in the skin and in the subcutaneous tissues, in far greater numbers in the latter. In the milder cases the center of the patch will show few cocci, but just beyond the border of the redness they will always be found. As the germ is unfavorably affected in its growth by a low temperature, this may be an explanation of the greater numbers found in the subcutaneous tissues, they being farther removed from the influence of cold. The germ travels in the lymph channels, and never in the blood-vessels. The reaction of the tissues to the irritation of the streptococcus erysipelatis is very different from what occurs from the irritation of a pus coccus. In the former there is not the rapid collection of leucocytes, and the coccus is not found in the cells. There is no warfare between the two. The cells do not work destruction of the germ, but its death seems to be the result of its own toxins, and I do not believe that pus is ever due to this coccus, as the contents of the vesicles and blebs in uncomplicated cases are only serofibrinous in character.

When the staphylococcic infection is added a marked difference is noticed in the behavior of the leucocytes. They become very numerous, and break down rapidly with the free formation of pus, and the constitutional symptoms of septicemia. Uncomplicated erysipelas I do not consider a dangerous disease but my definition of the disease would let it end when staphylococcic infection began, for it is then septicemia. When we consider the mortality as only six and one-half per cent. taking all cases, hospital and private, the uncomplicated cases must show a low rate of mortality. The face and scalp have always been considered dangerous sites for the location of the lesion from the ease with which the germ and its toxins could reach the brain structures causing inflammation. Located upon the face the lax structure of the parts permit of an enormous amount of edema, it being almost impossible to open the eyelids when they are the site of the lesion.

TREATMENT.

General.—The erysipelatous coccus is a great heat producer, and we find high temperature in cases that are at all severe, and even in the mildest cases a marked rise, which will aid in distinguishing the process from the erythemata with which it is so often confounded. Healthy blood we regard as bactericidal, and competent to destroy within certain limits pathological germs which may enter the circulation. Previous conditions to an attack of erysipelas have so vitiated the blood current that it is unable to cope with the coccus, and the disease develops. Treatment, then, must be directed to a restoration to the normal of this circulating fluid, while at the same time measures and medications are employed to destroy the germ and hasten the elimination of its toxins. The constitutional treatment of erysipelas medicinally has varied with the individual practitioner, and each has found his method successful, a very good evidence that the disease is self-limited, and but little influenced by internal medicines. A few remedies, however, have seemed in the hands of many reporters to have exerted a favorable influence over the course of the disease. I name them in the order of their value: tincture of iron, quinin, pilocarpin, and hyposulphite of soda. The action of these four remedies is bactericidal. If in the constitutional treatment of the disease there has been a great variety of remedies used, local treatment has shown a greater variation, and each reporter has been much gratified with the success attending the use of his applications or methods.

Remembering that the mortality of erysipelas is low and that the mild cases will recover without any medication, internal or local, we are furnished with an explanation of the apparent value of such varied treatment. Remembering that the disease is infectious; that it is due to a specific germ; that its course is limited, lasting for a week or ten days, and that when it extends beyond the eighth day complications have probably occurred; that even the mildest cases are at any moment liable to become the most grave; and knowing that the germ will not thrive in a low temperature, we are furnished with indications for a successful therapy.

Isolation of a case of erysipelas is a necessity for two reasons: to give the patient the benefit of an unvitiated atmosphere, and to prevent the infection of others. This is easy of accomplishment in private practice but sometimes difficult in hospitals, where erysipelas cases are often kept in the medical wards devoted to the treatment of chronic cases. Patients when isolated can also be kept in a low temperature, a matter that I think is very important. Plenty of fresh air is needed, and open windows and doors will work no harm to a person sick with erysipelas. The temperature should not be over sixty at any time. I am positive that I have seen improvment in cases immediately upon the removal of too much bedclothing, the admittance of fresh air, and the lowering of the temperature of the room from eighty to sixty or less.

Remembering the profound impression that is made upon the nutrition the closest attention must be given to the diet. Nourishment from the very first must be given regularly, and as often as every two hours. Complications are very liable to occur, and the patient who has been properly nourished during the first of the disease, is much better prepared to resist this additional drain. The food should be concentrated, and easy of digestion and assimilation. With a high temperature liquids are preferable. If I were compelled in any case to give preference either to forced feeding or the internal administration of medicines, I should by all odds use the feeding. Many of our cases come from that walk of life where they have not been able to get enough of proper food previous to the attack, and their nutrition needs close attention.

I do not believe that there is any routine treatment in the way of internal medication that should be adopted with the expectation that it will cut short the process. I am aware that numerous reports of the treatment by the tincture of the chloride of iron alone have seemed to show that it exerted a favorable impression upon the affection, and yet these cases only show a moderate gain in percentage over those treated by various remedies, taking the average rate of mortality of all cases of the disease, and I am inclined to the belief that the gain was more apparent than real, for we know that the disease is variable in its severity in different years or decades. An objection that I have to the use of iron in the doses that are given is the liability that exists of interfering with the digestion, and this objection holds good regarding quinin, and hyposulphite of soda. My treatment internally would be, then, symptomatic, and nothing for its influence in controlling the course of the disease. I regard the various antipyretics as worse than useless; they are harmful. We have stated that the coccus is a heat lover and developer, and the high temperature is best combatted by cold, and preferably by its application to the diseased surface, where we will get the refrigeration reducing the bodily temperature while at the same time we get direct results in the infected patches by the known influence of cold upon the coccus. A small surface will not furnish room for refrigeration, so while the ice bag may be applied here, it will be necessary to use cold sponging of the body as well. Cases previously debilitated may require stimulation, and I prefer strychnin, and black coffee to the alcoholics, getting a more lasting effect upon the heart in the use of the former, and with less interference with the stomach.

A point that is well to be remembered is the fall of temperature that occurs in some cases between the eighth and tenth day. I have seen it fall to 95° and without any other indication of collapse, but this fall must be promptly met with strychnin. I usually direct that it be given hypodermically at once the fall becomes subnormal, and in doses of one-eighth grain, and repeated every two hours until normal temperature is reached.

Local.—There is a feeling of tension, smarting, burning, or itching, and tenderness in the patches that is very distressing, and for the relief of which has been recommended remedies without number, lotions, powders, ointments, sedatives, astringents, stimulation, et cetera, all of which, if they have been of any value, it has lain in the fact that they formed a protective covering from the atmosphere. A cold calamin lotion, to which has been added a little carbolic acid, applied frequently until a deposit of the calamin covers the surface, will serve the purpose as well as any.

Measures to prevent the spread of the disease are also numerous. Germicides locally will probably have little influence in limiting the size of surface attacked.

We have seen that the coccus travels through the lymph channels, and if a means could be found that would temporarily close these channels it would limit the size of the lesion. It has seemed to me that when the lesion was upon a part where strapping could be used, such as the arm, for instance, that I have seen some good results in limiting the spread of the disease by a band of rubber or ordinary tape, encircling the part tightly enough to interfere with the flow of the lymph, but these cases have been those in which the subcutaneous tissues were only slightly affected, and when we remember that the coccus seeks the deeper structures it will be seen that it would be impossible to exert enough pressure to effect any good here. Painting by iodin or nitrate of silver I think of little value. If we could cause an absorption of a germicide through the epidermis good results might follow the bichlorid lotions. The attempt has been made to prevent the spread of the disease by hypodermic injections of some germicide, as carbolic acid, or mercuric bichlorid. I have a limited experience only with the acid (two cases, one an inebriate). In these a number of injections were made around the border of the patch, but without any influence upon the spread of the lesion, and with the effect of causing small abscesses at site of the operation.

The effect of a low temperature upon the coccus has already been referred to, and I believe cold is the best of all local applications for the treatment of erysipelas. An ice bag upon a patch of erysipelas relieves the subjective symptoms, while at the same time exerting a curative effect upon the process by interfering with the growth of the coccus. It causes no discomfort, and may be kept almost constantly upon the part, and the cold penetrates to the deeper structures, exerting its influence there which cannot be said of any other local application. A lanolin mixture of ichthyol, I have used frequently, and have thought it was of benefit, but in most of my cases I have used the ice at the same time, so am unable to state its value. The serum treatment so much in vogue at the present I have only used in a few cases, and I am unable to pass judgment upon its merits. I obtained no benefit from it whatever.

It is a matter of the greatest importance that the swollen eyelids be opened often, and the eye washed with a boric acid solution. The eye becomes very quickly affected in erysipelas of the eyelids, and unless treatment is instituted early, and is energetically pursued, disastrous results as sloughing of the cornea and total blindness result. The eyes must be seen even if it is necessary to relieve the swelling of the lids by the knife. Two cases have come under my care wherein loss of sight was undoubtedly the result of non-attention to this injunction. In one the eyes had been closed for four days, and in the other for one week. And when they came under my care examination showed sloughing of the cornea, and total destruction of sight. Fortunately both patients died.

The ear also requires close watching in facial erysipelas. One of the complications that is liable to occur, but fortunately does not occur often, is edema of the glottis. Prompt treatment here is the price of life.

IN CONCLUSION.

Erysipelas is an acute, infectious process of the skin and mucous membranes, self-limited, and always due to the Fehleisen streptococcus.

The contents of the vesicular or bullous lesions are serofibrinous in character, and when pus occurs it is the result of infection by a pyogenic germ added to the erysipelas, in other words a complication.

Internal medication exerts but very little influence over the course of the disease, and should be reserved for emergencies.

The dietetic management of the disease is of the greatest importance, and forced feeding furnishes the best means of combating the disease.

Little is to be expected from the actions of germicides when applied locally. Protection from the atmosphere will relieve the distressing subjective symptoms.

From the known influence of cold upon the life of the germ, it follows that a reduction of the bodily temperature is of prime importance, and is best accomplished by cold bathing while the continuous application of the ice bag upon the affected surface is the best of local applications.

Where sufficient pressure can be applied to the lymph channels to interfere with the lymph current, spread of the lesion might be controlled by its use.

Isolation, a cold room, and plenty of fresh-air, in addition to the above furnishes the best treatment for the process we have been considering.

100 MIAMI AVENUE.

WHAT HAS MODERN SCIENCE ACCOMPLISHED TO PREVENT CONSUMPTION?

BY ZIBA H. EVANS, M. D., TRAVERSE CITY, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

"FOR untold centuries in the loom of time" consumption has been woven in the delicate fabric of the anatomical make-up of man, and the most radiant part of that wondrous structure, the red blood, is made to change, the reason for which the finite wisdom tabernacled within the cerebral cortex of ROBERT KOCH has spoken. Clinical experience has taught all thinking physicians that movements in medicine are extremely dangerous, and furthermore, any who follow the flash light of a single taper quickly vanish from sight and shortly from memory. Therefore, it behooves us to abide by the older teachings, ever remembering that it is the old. light that illuminates all.

It was HUGHES BENNETT who approached the subject of consumption with more intelligence and capacity than any before or since his day. In the treatment of the disease now under consideration he advocated nutrition and pure air, and beyond this we have not advanced, for the reason that we have always lacked trustworthy data for our guidance. I do not wish to be understood as believing in all that was taught by our fathers regarding the treatment of consumption; neither can or will I subscribe to the idea that we must first gain the consent of the ages before setting their teachings aside.

I am fully aware that the day now passing in medicine is unique. With less regard than ever before physicians cut loose from past theories, and with greater ease ally themselves to new doctrines. The question now may be asked, What constitutes a true investigator? In answering this question I will give only my opinion. .A true investigator should first be a man who can open his eyes widely and look into the future without closing them on what has been. He must be endowed with hope as well as with remembrance. He must also be progressive, and yet conservative. A unity and combination of the two must invariably be in evidence before it can be said that he is walking in the clear uppermost atmosphere of his profession. There is no man living who can carry on and succeed with any original investigation who ignores the works of others who labor in the same field, or, in other words, assumes to himself that he is the only student with a monopoly on the final wisdom. Modern science, so-called, has had of late years many cacklers, and as the result we have been told much, both through the medical and lay press, of their ability to cure consumption. Modern science has, it is true, knocked at the door of nature with some little success. It is now able to observe the motion of living bodies and measure their cells. It now sees certain matter in existence and guesses how it assumes form, but how eloquently silent investigators are when asked to tell us something in regard to the origin of these minute cells. These little germ chasers, the advance guard of modern science, seem to be more fatigue proof than the legions who followed CAESAR to the conquest of Gall.

It is in the German laboratories that the inoculation of intellectual dishonesty is carried on to its most reckless extreme, and as the result America has for years been the dumping ground more for foreign therapeutic frauds than the remainder of the nations on GOD's green earth. I feel the blush of shame creeping over me as I record the fact that we today have among us thousands of aping physicians who, with open mouths and empty heads, stand ready at all times with pen dipped into delusive ink to endorse anything new emanating from Germany. Nay, some of our surgeons want to appear as Germans so badly that they have adopted their custom of drinking buttermilk at the operating table and sticking their feet into wooden sandals.

I shall, in discussing this very important and intractable malady, assume that every person suffering from consumption thereafter ever remain a shipwreck, and I shall also assume that we are without material out of which to construct a life-line whereby we may deliver the unfortunate victims from the sins of their early fathers. All this boasting about what the wise man in the laboratory is doing comes to naught whenever we knock at his door and ask for a remedy, or even an idea of one that will stay the onward march of this incurable disease. Had DOCTOR JOHN B. MURPHY, of Chicago, first applied the lever of reason to the subject of consumption, and with it turned the disease over and reviewed its natural history as well as the function of the lungs, he would, in my judgment, never have told us to collapse these organs.

It will be seen from what I have already stated that I still regard consumption as one of the greatest mysteries as well as a great deep, but the greatest shallow of all is shown in the man who believes it to be a contagious disease.

In the June number of the *Teachers' Sanitary Bulletin,* published at Lansing, Michigan, by the State Board of Health, there appears the following, which may be seen on page 40: "The most important for the restriction of consumption is the disinfection or destruction of all sputa of every consumptive person. It is best that all persons who have a cough should carry a small piece of cloth (each just large enough to properly receive one sputum) and paraffined paper envelops or wrappers in which the cloth, as soon as once used, be put and securely enclosed, and with the envelop burned on the first approaching a fire." This kind of chatter reminds me much of the noise made by that poor unfortunate child in whom wisdom has remained at a standstill while his hair and whiskers have continued to grow. There is no physician of clinical experience who will deny that we oftentimes encounter patients suffering from consumption of the bowels with an uncontrollable diarrhea. If it is to become the practice of the future for patients suffering from consumption to confine their sputum to little bits of cloth and afterward burn them, I would then, in that event, like to inquire of the wise ones who so lavishly indulge in the luxury of science, how large would they advise the cutting of the little squares for that young lady who is suffering from consumption of the bowels. Every medical discussion, however overcharged with forky lightning, and however hard the rugged English is twisted into sentences, even if more cutting than whips made from scorpions' tails, should mean nothing but the marking of some new trail on the abandonment of one that has led us astray. Clinical experience has erased from the minds of all physicians, who think for themselves, KOCH's theory of curing consumption as completely as did COPERNICUS wipe out the Ptolemaic system of astronomy.

It is made to appear in modern medical literature that ROBERT KOCH was the first in the world to produce consumption by artificial means in the lower animals! Now, for a moment, let us go over the history of this subject and see where the historical facts will lead us. M. VILLENIM, in 1865, produced tubercular disease in animals by inoculating them with tubercle coughed up by patients suffering from phthisis. This original investigator experimented on rabbits, taking them in pairs, inoculating one by placing portions of fresh tubercle under the skin and leaving the other alone, both being kept under exactly the same conditions. The inoculated rabbit was found after a certain time to be tuberculous. However often these experiments were repeated the results were the same. Other experimenters came forward, including the man of Leberh, and confirmed them. M. VILLENIM also experimented on rabbits with the materials of carbuncle, contents of abscesses, cancer, cholera stools and typhoid lymph, but in no case did the same effects follow as with the matter of tubercle. During the same year of 1867 MR. SIMON laid before the Pathological Society of London several specimens of tubercular disease in rabbits, the product of inoculation with tuberculous matter. In the same year a paper was read on this subject at the Royal Medical and Surical Society of London by MR. WILLIAM MARCEH. This investigator stated that these experiments were conducted with the view of *showing that in inoculation we possess another means of diagnosis.* His conclusions are as follows:

(1) The inoculation of guinea pigs with the expectoration of patients suffering from phthisis will, in a certain stage of the disease, and possibly throughout, give rise to the formation of tubercle in the operated animal.

(2) If two or more guinea pigs be inoculated with human expectoration brought up by coughing should die from tubercular disease, or on being killed at least thirty days after inoculation should exhibit tubercles, this may be considered as direct and positive evidence that the person whose expectorations were inoculated was suffering at the time from tubercular phthisis.

(3) If two or more guinea pigs be inoculated with the expectorations of a patient in the third stage of phthisis and one of these animals do not die of tubercular disease or exhibit any tubercles when killed fifty days after inoculation it may be considered that the softening of tubercles and the secretion from the pulmonary cavities are arrested; and consequently the patient is in a fair way of recovery.

(4) Other materials besides the pulmonary expectorations taken from the human body in certain stages of phthisis, as blood and pus, appears to be also possessed of the power of causing the formation of tubercles in guinea pigs when inoculated into these animals.

The discussion which followed the publication of the foregoing principles lead to the subject being investigated by DOCTOR ANDREW CLARK, DOCTOR SAUNDERSON and DOCTOR WILLIAM FOX. Their views briefly stated amount to this: That the inoculation of the rodentia with other materials than tubercle will render the animals tuberculous. In the experiments of DOCTOR WILLIAM FOX one hundred and seventeen guinea pigs and twelve rabbits were inoculated with various materials. Of the one hundred and seventeen guinea pigs fifty-eight were tubercular, six were doubtful, and thirty-five were negative. Those cases were only reckoned as successful in which three of the following organs were shown to be affected, namely, the lungs, bronchial glands, liver, spleen, peritoneum, intestines or lymphatic glands. The animals had all been kept under conditions as natural as possible and had been well fed and attended. The most common effect was the production of cheesy matter usually encapsulated under the skin. The next change was an enlargement of the lymphatic glands in the neighborhood of the inoculation, the glands showing on section scattered lines and streaks of cheesy degeneration. The lungs were the organs next most frequently affected, and finally the bronchial glands. In each case the growth was one resembling lymphatic structure consisting of masses of round cell or nuclei imbedded in a homogeneous tissue.

Supposing, then, these experiments are satisfactory, the opinion advanced by M. VILLENIM, and later by KOCH, that tubercle is a specific growth producible by itself alone, will have to be abandoned. DOCTOR FOX, by his experiments, has demonstrated beyond a reasonable doubt that pieces of thread charged with vaccine lymph, simply setons, portions of putrid muscle, pus from various sources, sputa, et cetera, gave rise to the usual constitutional symptoms of tubercular affections as well as growths not distinguishable from tubercle. DOCTOR SAUNDERSON has also demonstrated that guinea pigs can be rendered tuberculous by inoculating them with pus from the secondary abscess of pyemic patients or even after merely introducing a clean seton of unbleached cotton; nay, even giving a guinea pig a brisk pinch in the flank has been known to produce the same result.

This brings us down to the epoch of KOCH, and in view of the above historical facts who can longer regard him as an original investigator? I, for one, consider KOCH only in the light of an expert operator. He has made, quite successfully, a literary anastomosis whereby he has united to himself all previous experimental knowledge regarding this bewildering subject. In the *Berliner Klinische Wochenschrift* for April 10, 1882, KOCH made known to the world what he considered then to be a very important fact, that is, the discovery of bacilli in the tubercular disease of man and animals, and that he had succeeded in cultivating these bacilli upon the coagulated serum of blood, and had been able to set up tubercular disease in healthy animals by inoculating them with the cultivated product. This much I am willing to grant to KOCH, and in doing so should like to inquire how many lives have been saved by his discovery? It was known long before KOCH entered the medical profession that by making single incisions into guinea pigs that they afterward perished with inspissated abscesses at the seat of injury and with miliary tubercles in their various organs. KOCH's friends on this side of the water have tried hard and long to convince the American profession that he is honest and extremely modest. Now, for a moment let us go over the recorded facts and see if this claim holds good. PROFESSOR GUITERAS, in an article which appeared in the *University Medical*

Magazine, Volume III, 1891, page 372, has tried hard to defend his friend's professional attainments as well as his literary honesty and much vaunted modesty. KOCH announced in an address before the International Medical Congress in Berlin in August, 1890, that he had discovered a substance which conferred on animals experimented upon an immunity from inoculation with the tubercle bacillus and which arrested tuberculous disease in man and animals. First, let us inquire if this statement has ever been realized upon, and if so, when and by whom? Second, is a man to be considered modest who appears before such a gathering of medical men as was assembled on that occasion in Berlin and announces what he must have known to be a fraud, a snare, and a delusion? Third, is it professional to announce simultaneously from three different medical centers, Berlin, London and Philadelphia, the discovery of tuberculin, the twin brother of the elixir of life? When these articles appeared I thought they smacked loudly of commercial enterprise and subsequent events have convinced me that my early impressions were quite correct. Tuberculin possesses about as much power to control the progress of tuberculous affections as does a Turkish harem possess virtue!

It becomes us in the future to keep our heads in order that we may weigh most carefully the merits of anything new coming from Germany and compare it without fear or favor, before adopting it, with the ripe experience and wise clinical teachings that have come down to us from those who have made medical history, ever remembering that our American forefathers and English cousins were not all fools, and that the full scientific light of noonday is not yet shining exclusively on the Germans, notwithstanding they once boastfully stated that it would before the closing hours of the nineteenth century.

DERMOID TUMORS IN GYNECOLOGY.*

By FRANK D. SUMMERS, M. D. DETROIT, MICHIGAN.

VISITING GYNECOLOGIST TO SAINT MARY'S HOSPITAL.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE subject of dermoid tumors that I wish to bring before you this evening is one of great importance to all medical men, as they are so frequently coming before us for diagnosis and treatment. Upon careful study we will find that they are tumors that have a peculiar character of congenital formation within their wall which may be attached to the external surface of the body or to some internal portion like the abdominal or pelvic cavity. They have the peculiar faculty of being made up of tissue that is not normally found in those localities.

*Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

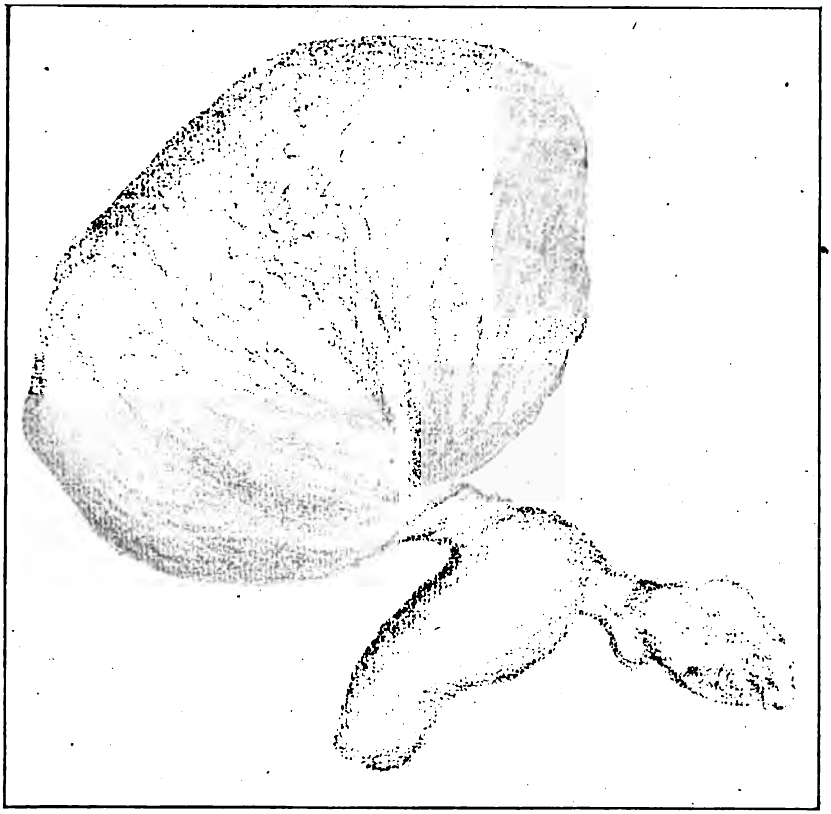
The most frequent seat for the formation of this peculiar growth is in the ovary, but it is found in other parts of the body. One variety of these tumors develop in parts of the body where there are no sebaceous glands but the tumor will have a secretion likened to the sebaceous material. We have another variety that develops in localities where there are sebaceous glands and hair follicles from which grow long hair, and in the interior of this sebaceous matter we find many balls of matted hair. We also have a third variety that is made up of several varieties of tissue and organs that resemble teeth found in the dental follicle or implanted upon various other bony structures. These teeth have the character of first and second dentition which may be single or multiple and they have been found as high as three hundred in number. Some of the fetal long bones and cartilage have been found in these tumors.

The size ordinarily varies from a walnut to a human head. They are found at all ages from infancy to old age, and in the married and unmarried.

The exact mode of developing is not yet thoroughly understood, but they are known to be made up of several different tissues which originate from a displaced blastodermic cell found in all parts of the body, that develops teeth, hair, long bones, cartilage, muscular tissue and nerves. In some places within the wall of these tumors are presented tufts which have the same structure as the skin, possessing papillæ, sebaceous and sudoriparous glands, hair follicles, and hair, and at other points the wall is smooth, thin and fibrous.

These tumors may be single or multiple. The dermoid tumor of the ovary may consist only of a wall of connective tissue lined with epidermis which proves that they contain distinct epidermic cells. In the cavity of these tumors is found a mass of sebaceous material. The simple tumors contain bone, teeth, cartilage, glands, mucous and serous membrane, nerves, portions of eyes, fingers with nails, and mammary glands. DOCTOR MEARS, of Philadelphia, reported the case of a girl of six years of age from whom he removed such a tumor. Many similar cases are reported as occurring from this age to adult life. DOCTOR GRAVES reported a case of dermoid tumor containing the left side of a human face, an eye and a molar tooth. In the museum of Saint Bartholomew's Hospital in London, there is a congenital tumor which was removed from the anterior mediastinum of a woman twenty-one years of age which contained skin, fat, sebaceous material and two pieces of bone similar to the superior maxillary bone, in which several teeth were present. DUYSE reported a case of labor which expelled through the rectum a rectal dermoid tumor containing a rudimentary eye, a canine and a molar tooth and a portion of a bone. WARD reported the removal of a dermoid tumor weighing thirty pounds from a woman who had already borne two children. This tumor contained long straight hair with portions of skin, and also balls of hair matted together, of which there was about one and one-half gallons by measure. **JAMIESON** reported a remarkable case of multiple dermoids which had by actual count two hundred and fifty tumors on the body.

To illustrate the size of these dermoid tumors I will present to you two specimens with their history and the report of one other case.



POSTERIOR VIEW.—The photograph represents a posterior view showing the comparative size of the tumor to the uterus and right ovary and also the twisted pedicle.

MRS. M., aged forty years, came under my care a few weeks ago complaining of having had pain in the left ovarian region for the past two years. Upon examination I found the uterus displaced to the right with an enlargement situated to the left and above the uterus resembling very much the size and feel of an eight months' fetal head. I found the tumor perfectly free and movable and believed a favorable result would follow its removal.

Patient consented to enter Saint Mary's Hospital for operation, and I immediately operated, entering the abdominal cavity through the median line, and found at once that I had to deal with a large dermoid tumor of the left ovary. The pedicle had twisted backward and downward two or three times upon itself so that some portions of the tumor were already black from strangulation. It was undoubtedly this strangulation that had caused her to suffer intense pain for the last few days preceding the operation. I tied off the pedicle close to the uterus, severed the large tumor from its attachment, and closed the abdominal cavity with catgut, employing the burried suture and silkworm gut for the external suture. Patient made a complete recovery.

Upon opening this tumor I found it filled with sebaceous material, tufts of hair and also loose hairs that measured from ten to fifteen inches in length and were about three hundred in number.

The second case (Mrs. A., aged nineteen years) that I wish to report is one that gave a similar history, complaining of pain in the left ovary. I advised patient to enter Saint Mary's Hospital for the removal of a small tumor, to which she consented. I entered the cavity through the median line and removed the second specimen, which is about the size of a small hen's egg and has also proven to be a dermoid of the ovary. I closed the wound, as in the first case, and patient made a complete and uninterrupted recovery.

The third case is Mrs. B., aged twenty-nine years, referred to me by Doctor Toepel. Patient had suffered intense pain in the ovarian region. She consented to enter Saint Mary's Hospital and I operated October 23 and found a dermoid of the overy about the size of a walnut. She made uninterrupted improvement toward recovery.

The reports of these cases are sufficient, without taking up more of your time, to illustrate the importance of a diagnosis in such tumors. Some of the smallest tumors cause such distressing symptoms that they are quite likely to come under your observation for treatment and they should be recognized early. They are more frequently found in women between the ages of fifteen and thirty. If they are not combined with any inflammatory trouble in early life to produce pain they might not manifest symptoms to attract attention, but go on with their gradual slow growth for years until the patient discovers that she is getting large. Others might go on for years without notice and all at once the pedicle becomes twisted and the person is immediately seized with intense pain. If there has been a slight inflammatory trouble the tumor is extremely painful upon pressure. Sometimes when the tumor has a free pedicle it will float out in the center of the abdomen and resemble a pregnancy in its early stages. It is not difficult to make the diagnosis of the presence of a tumor, but it is extremely so to distinguish its nature. For its treatment I can recommend only one remedy and that is an early removal by surgical means. In this enlightened age of aseptic surgical skill this procedure offers a most favorable prognosis for all cases.

A CRITICAL CONTRIBUTION TO THE DOCTRINE OF THE MOTION OF LYMPH.*

By NORBERT HERZ, Ph. D., M. D., Detroit, Michigan.

[Published in The Physician and Surgeon exclusively]

In my paper "Kritische Beiträge zür Lehre von der Lymphbewegung, Heidelberg, 1899," I gave physiological tests for the statement "that the lymph is to be regarded as the direct and immediate source of the urine." Today I want to gather clinical and pathological experiences, by which I primitively have been led to this doctrine and by which it can be directly proved.

Nowadays it is taken for granted that all food—with the exception of fat—is conveyed to the different organs by the blood. Experiences which have led to that idea will be considered later on. Now I want to speak of some general points of view on this subject.

First, when nourishment is led to the organs by the blood it goes a long way. It proceeds from the mesenteric veins through the liver and the vena cava, the right heart and the lungs, then together with the oxygen through the left heart, the aorta and the arteries. Now the question arises, why does the oxidation not take place in this long way instead of later in the tissues? Whatever changes may happen in the nourishment, e. g., the formation of glycogen and the secretion of bile in the liver, both, nutritive bodies and oxygen, move together the way named, without acting one upon the other, and only in the short time in the tissues is the oxidation said to be done. That, in fact, some small parts of nutritive bodies, as signs of metabolism, are oxidized in the blood not only gives no explanation, but seems to give a greater right to ask why oxidation is not completely done in the blood. This very fact alone makes it evident that probably all nourishment is carried to the tissues by the lymph. Indeed it is well known that the lymph-spaces are for some tissues the only way of support, e. g., for the cornea, the retina, the lens, the endocardium, the cartilage and the epidermis.†

In the second place, it is to be remembered that the appearance of albumin in the urine must be considered as a pathological sign, while contrary to that, the transgression of albumin from the intestines into the blood and from there into the tissues should be considered as quite normal. Now the question presents itself whether physiological qualities of the endothelial cells of the glomerulous vessels are specifically different from other endothelial cells.* Further, when the glomerulous endothelial cells are made equal to the other cells by hypothetical changes of the walls of the vessels, I ask what thereby has to be regarded as pathological? Besides, those changes of the walls of the vessels have never been proved anatomically. Finally, it is a well-known therapeutical fact that edemas from heart disease can be overcome by cardiac tonics. How can it be possible that edemas disappear as result of increasing pressure of the blood even if increased transudation should take place?

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*Read before the Wayne County (Detroit) Medical Society.

†For the cornea it is said that nutritive bodies pass through the "marginal looped plexus"; for the retina through the blood-vessels of the choriocapillaries.

All these facts give evidence that the blood cannot be the conveyer of nutritive bodies, but that it must be the lymph. We then understand quite clearly that each increase of the quantity of the lymph, or only the albumin in it, must be followed by a transgression of albumin into the urine. Accidental albuminuria without kidney trouble is the consequence. But further injuries of the epithelial cells and then nephritis can follow. This gives a simple explanation of the connection between diseases of the heart, kidney and edemas.

It certainly is not the closed endothelial coated lymph vessels which provide for the spread of the lymph; for they are not very numerous, and the motion in them is likewise centripetal, conveying also into the veins. Besides those vessels have to carry plasma and particles into the blood, and then they have to regulate the pressure of the lymph in the lymph-spaces of the body. Lymph is spread and moves all over the body: from the intestinal rugæ it comes into the perivascular spaces; from here it is pushed by the arterial pulsation into the tissues; it then returns to the serous cavities. Therefore, the supply of the tissues and the carrying off from them is reduced by lowering the pressure of the blood, and is regulated and improved by therapeutic measures.

Furthermore, I wish to call to your mind that local injuries of tissues very rarely are followed by general infection, because small cellular infiltration shuts off the lymph motion. This could not be the case if the blood were the conveyer of nutritive matters.

It must be concluded from like reasoning that the secretion of the products of oxidation cannot take place from and through the blood. Certainly we cannot adopt a retrograde current through the arteries. Therefore, the only way for the products of oxidation is

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*The hypothesis of transgression of albumin through the vessels of the Malpighian balls never has been tested directly. See HEIDENHAIN: "Microskopische Betiräge zür Anatomie ünd Physiologie der Niere" *Schultze's Archiv für mikroskopische Anatomie*, Band X (1874), page 47.

through the veins, the heart, the lungs, the aorta and so forth. If we will not admit that all or some of those products of oxidation move several times through the body, then all must be carried into the renal arteries, avoiding all other arterial trunks. Certainly this is not very probable. It seems to me to be more probable that the blood carries only the gaseous matters, oxygen and carbon dioxide, and that the conveyance of nutritive bodies and secretion of urine is reserved for the lymph.

Whether the nutritive lymph and the secreting lymph are mixed or separated one from another, so that the tissues take all they need, and give off all they do not need, cannot be settled without further investigation. The participation of regionary lymph-glands always seems to indicate a separated centripetal current of a part of the lymph.

Concerning the further course which the secreting lymph takes, the most probable supposition is that it is collected in the serous cavities, where some small quantities of so-called "transudates" are always found. These, however, are nothing else but lymph. An accumulation cannot take place, and should not take place, or else disease will follow. Therefore, even the smallest quantities of urinary constituents in the lymph must be removed. This is the task of the kidneys. Although the kidneys are small they are sufficient, because all serous cavities are in connection one with another so that the peritoneal cavity forms the center for secretion. I shall speak of this later on.

First, however, it must be remembered that there has already been an older view that lymph conveys the nutritive matter. It was said against this theory that an outflow of lymph was not known. Further, the importance of the blood for the support of the tissues was not clear. But since we know that blood conveys the gaseous matters these objections are removed. But a third objection is to be thought of, although it has not yet been made, as far as I know.

In the yolk, and even in the placental circulation, nutritive ingredients and oxygen, and on the other hand urinary matters and carbon dioxide are carried together; but undoubtedly this is the way only during the time of the formation of vessels. As soon as organs are formed lymph vessels also grow, and it is to be considered that one of the first and most important organs of the embryo is the liver. It has to be regarded as very probable that nutritive matters are discharged here from the blood and go into the lymph-vessels.

In the independent body, the body separated from the mother, the liver serves for formation of glycogen, bile and urea.

Without entering into a long discussion as to whether glycogen is formed only in the liver or also in other organs or tissues it is only to be remembered that urea can be produced in all other organs but is carried off because it has not to be accumulated. The hypothesis sometimes adopted that the liver is the only place for the production of urea is not very probable, because in this case it would not be quite clear why all organs may produce carbonate of ammonium which has to be changed by a synthetical process into urea, which certainly can happen physiologically. At least I remember that in fishes the analysis showed urea in larger quantities in all organs. (See my paper mentioned above, page 43.)

Concerning the formation of bile, the opinions of physiologists are contradictory. The hypothesis that the bile is a very important product of the liver seems to be the most generally accepted. But beneath all its functions this is undoubtedly the chief one to facilitate the resorption of fat and perhaps to promote the peristalsis of the intestines.

Indeed the bile seems to me to be rather an excretion than a secretion of the liver, which is able to still perform some functions. All appearances are explained when we suppose that in the gall capillaries, which are intercellular spaces, a separation of useful and useless material takes place. The first goes into the lymph, the latter into the bile, which can enter, without passing the gall-bladder, into the duodenum. Probably this is the normal way; but if the ductus choledochus is closed by ingests which pass the intestinal tract, the bile is pressed into the gall-bladder. Normally, this backflow of the bile cannot take place on account of Heister's valve. Thence it can be said that the mechanical explanation of icterus neonatorum seems to approach nearest to the truth. The ductus choledochus and the upper part of the duodenum form a dichotomic ramification in the lower part of the duodenum. During the intrauterine life the liver is the seat for separation of food into useful and useless parts (meconium), the latter being discharged by the ductus choledochus. As soon as the child begins to drink, the upper part of the duodenum becomes wider and the valve of Heister will be closed; this is followed by a repulsion of bile, and only when the conditions of pressure are balanced will the icterus disappear.

Therefore, it must be assumed that the liver is the chief organ of nourishment in embryonal life, and the last objection against the theory that lymph conveys the nutritive bodies, can be regarded as removed.

Now we can fianally say: (1) increase of pressure in the blood-vessels produces disappearance of edemas in consequence of the increased flow of urine; (2) insufficiency of secretion by the kidneys is followed by edemas and compression of blood-vessels; and this compression increases the resistance in the blood circulation. Thereby the connection between the functions of the kidneys and the diseases of the blood-vessels is explained.

Secrétion by serous cavities demands two propositions: First, a communication between the serous cavities, and second, a communication between them or one of them and the outside by means of the kidneys.

The communication of the serous cavities is a well-known fact. Only a few words are to be said about the communication between the peritoneal cavity and the epidural space of the spinal cord. Subdural space and subarachnoideal space are lymphatic spaces with a flat endothelium which is completely separated from all other endothelial cells. Its genesis can therefore be explained only in two ways. First, through formation by emigrated germs of mesenchyme. For this supposition mesenchyme-germs are considered as the common generators for all tissues which come in early stages from the crossing place of all three germ-layers, the prostoma; in a later stage these germs are represented by the white blood-corpuscles. The second supposition is that the said endothelium of the lymph-spaces in the brain has been primitively connected with the serosa of the pleuroperitoneal cavity and in the later evolution has been separated from it.

I have not found any decided reference to the genetic place of this endothelium. In the pretty large literature I found only two remarks which cannot be taken as more than hints to the ideas of these two authors.

V. RECKLINGHAUSEN, "Untersuchungen üder die Spina bifida,"* compares (page 316) an umbilical hernia coming from intestinal fissure with rachischisis, and says: "Der von der Darmwandung gebildete Aufsatz ist zu vergleichen mit der Area medullo-vasculosa die an ihm gelegenen Oeffnungen welche je in die Darmhöhle führen entsprechen den beiden Polen der Area. Die seröse (amniotische) Wand, welche die Abdachung der Hernie bekleidet, correspondiert der Zona epithelio-meningeale und sie setzt sich im Stiel des Tumors in die fertig gebildete äussere Haut fort, welche somit die Zona dermatica repräsentiert. Endlich wird die Analogie noch dadurch vervollständigt, dass sich das Peritonium viscerale des in der Hernie gelegenen Darmes aüf der Innenseite des Tumors nicht nur, sondern auch des ganzen Herniensackes fortsetzt und somit gerade wie die Arachnoidea die innere Lamelle der Wandung des Sackes bildet."

[The appendix formed by the walls of the intestines is to be compared with the area medullo-vasculosa; the openings herein which go into the cavity of the gut, correspond with the two poles of the area. This serous (amniotic) wall, which covers the slope (declivity) of the hernia, corresponds to the zona epithelio-meningeale and in the shaft of the tumor it is continued into the external skin, which therefore represents the zona dermatica. Finally the analogy is completed that the peritoneum viscerale of that part of the gut which lies in the hernia is continued, not only to the inside of the tumor, but also to the hernial cavity, and thus forms the inner layer of the sack just as the arachnoidea.]

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* *Virchow's Archiv*, Band CV (1886), page 243 *et sequentia*.

I. KOLLMAN makes a more definite statement. In his paper, "Ueber Spina bifida und Canalis neurentericus,"* he says: "Es scheint mir die Spaltungen der Wirbelkörper und die gleichzeitigen Verbindungen zwischen Wirbelcanal und der Pleura-Peritonealhöhle erscheinen seit der Kenntnis von der Existenz eines canalis neurentericus heim Menschen und seit den Resultaten der experimentellen Embryologie bei Fischen, Amphibien und Vögeln bezüglich der genese verständlicher weil eben cine Verbindung im embryonalen Zustande zwischen coelom und Medullarrinne besteht die offen bleiben kann."

[It seems to me that fissures of the vertebral bodies and the simultaneous connections between the spinal canal and the pleuroperitoneal cavity appear, since the knowledge of the existence of a canalis neurentericus in the human body and since the results of the experimental embryology in fishes, amphibies and birds concerning the origin, more intelligible, because there is in embryonal state a connection between Coelom and medullar-channel which can remain open.]

I would lay importance on some remarks of V. RECKLINGHAUSEN, who indeed seeks the cause for formation of fissures in an increase of pressure, following from congestive increase of transudation through the walls of the vessels (page 429) supported by a defect of the dura.† But V. RECKLINGHAUSEN does not give so great an importance to the transudation, for "very seldom hydromyelia has been found besides tumors and only in the cases of spina bifida in the region of the neck."

"Alle diese Beobachtungen gleichzeitigen Vorkommens hydropischer Zustande des Medullarrohres mit Spina bifida und Rachischisis reichen aber nicht aus, zum Beweise der Abhängigkeit letzterer von diesem Hydrops. . . . Ich sehe vielmehr in allen diesen Combinationen nur coordinierte Zustände, welche sich neben anderen entwickeln können ohne dass der allgemeine Hydrops des Medullarrohres dem partiellen oder der Myelocystocele vorherzugehen braucht" (page 431.)

[All those observations of simultaneous occurrence of hydropic states of the medullar channel with spina bifida and rachischisis are not sufficient to testify the independence of the latter from this hydrops . . . on the contrary I see in all these combinations only coordinate states which may generate besides others. But we must not imagine that the general hydrops of the medullar channel must precede to the partial one or to the myelocystocele.]

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* *Verhandlungen der anatomischen* Gesellschaft in Göttingen, 1893, page 134 *et sequentia.*

† But from other sides tissues interpreted by him as Pia have been interpreted as Dura.

It is to be remarked, that the entire omission of the supposition of the transudation does not change the conclusion in the least. Finally, I want to remark that physiologically there is no connection between the epidural space of the spine and the cerebral excavations (in the brain there is no epidural space) but that the subarachnoideal space of the brain and spine communicate one with another and with the ventricles. But it is not improbable that in the spinal cord of the embryo there is a connection between the epi- and subdural spaces. However, this connection is obliterated at an early stage. Only in pathological cases it may remain open or becomes reopened under an abnormally high pressure.

Those communications explain in a simple way the appearance of edemas in the face in cases of nephritis, and the retinitis albuminuric and diabetic. They explain further easily the uremic and diabetic coma. There are two ways to explain it. Either by an increase of the brain pressure, when we may think that this pressure is transmitted without a connection of the epi- and subdural space. But we may explain the coma also by intoxication either of urea or carbonate of ammonium in cases of nephritis or by intoxication of sugar or perhaps its products, alcohol and carbon dioxide in cases of diabetes. This intoxication can take place when the above mentioned connections are open.

Certainly those communications must be open more frequently in childhood. Indeed this is shown by many cases with cerebral symptoms in diseases of the stomach in children. Besides it should be remembered as an analogue to those communications that in some cases of one sided hydrocephalus the foramen of Monroe has been found closed.

Briefly, I want to call attention to the grave cases of intestinal diseases with their accompanying brain symptoms. Without my supposition it is difficult to explain why, of all serous cavities, injuries of the peritoneum are so dangerous to life. Pleuritis, pericarditis, a partial peritonitis are not so grave diseases; on the contrary a general peritonitis is almost fatal. This can only be explained by the effect of the same on the spine; for, the generally adopted supposition of the easy resorption cannot be entirely right, because some peritoneal inflammations, which are spread even over a large part of the peritoneum, are not fatal.

The connection between the coma and the edema seems to be shown still further by the good results which always follow the diaphoretic treatment in the grave cases of coma. Therefore, we can take a therapeutic hint; we may try the taping of the spinal canal in those cases.

Up to now this has not been tried, but nearly the same experiment, only in another way, is the laparo-hysterectomy in extreme cases of eclampsia parturientium, which has been made sometimes in the last few years.*

But it is not known whether the convulsions stopped after the whole operation or already after the opening of the peritoneum. Certainly for the deciding of this question more attention should be paid to the details.

Here I must say a few words about the connection between the peritoneal cavity and the outside. I discussed thoroughly in my first paper (page 43 and 44) that there are direct connections in fishes, amphibies, further in the human embryo, finally it is to be remembered that the genital products in all classes of animals, included human beings are delivered from the genital glands just through the peritoneal cavity.

Certainly the kidneys of the higher animals are enclosed in a strong capsule, but this is perforated by a system of lymph vessels and therefore cannot be an impediment for the secretion of the urine from the lymph. It might perhaps be said that the blood of the kidney-veins is not so dark as that in the other veins, but the same objection would hold good for all glands. Every secretion is accompanied by a greater flow of blood and the arterialization of the blood is only an apparent one; it is to be ascribed to the larger flow.

The blood in the arteries contains nineteen per cent. oxygen, the blood in the veins only twelve per cent., but in the veins of the glands about fourteen to fifteen per cent. Generally, the blood loses in the tissues seven per cent. oxygen, in the glands only four to five per cent. But the glands get two or three times more blood. From this larger quantity the glands get a smaller percentage, only four to five per cent. of each one hundred parts of blood. But absolutely, for two hundred to three hundred parts, according to the larger flow, it is from eight or ten up to twelve or fifteen parts. The glands get indeed a larger amount of oxygen, although the blood loses a smaller percentage.

What importance now must be attributed to the glomeruli? I answer, the same as to all capillaries. They supply the kidneys with oxygen. This supply must be very much greater than in any other organ, including even the glands, because the parenchyma of the kidneys is very much more affected by all matters which pass through the body. The glomeruli, however, are formed only for higher organizations, where we find a secretion and not only a passage. Nussbaum* called it a "progress from a less useful organization to a better one in which some transudates in the peritoneal cavity, which in the earlier stage for the organism must be lost find use in the latter" ("Ein Fortschritt von einer weniger vortheilhaften zu einer besseren Einrichtung da das vorher für den Organismus verloren gehende flüssige und sicher lymphæhnliche Transsudat der Bauchhöhle späterhin nach Art der Lymphe wieder verwendet wird").

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*I had planned to make such experiments in animals: laparotomy, tying of the ureter, and drainage of the peritoneal cavity; however, I have not yet had time and opportunity to carry them out.

But this progress does not consist in a "mighty change of functions of the peritoneal cavity" ("einem gewaltigen Funktionswechsel der Bauchhöhle") as Nussbaum says. This would be a jump in evolution which nowadays has not to be accepted. Quite on the contrary, I believe that there is only a small step. Instead of an excretion of all peritoneal lymph, which takes place in the lower classes of animals, there is found a secretion partly by means of osmosis and partly by action of the renal epithelium.

In the beginning of this paper I said that I would review later on the experience which led to the idea that food is carried to the organs by the blood. Certainly we must think that these experiences are entirely proving. Only then all further conclusions which have been drawn from them are proved.

But I say that they are not only not proving but they admit an entirely opposite conclusion. Schmidt-Möhlheim's conclusion for the transgression of albumin into the blood is drawn from the fact that it does not come into the blood through the ductus thoracicus. However, the conclusion is erroneous, if we do not admit *a priori* that it goes into the blood. The whole explanation of Schmidt-Möhlheim stands and falls with his premise. Heidenhain, "Beiträge zur Histologie und Physiologie der Darmschleimhaut,"† came directly to the result that, from his experiments, nothing is to be concluded concerning the way which nutrtive bodies take into the blood. The explanation of Hamburger, "Über die Regelung der osmotischen Spannkraft von Flüssigkeiten in Bauch-und Pericardialhöhle; ein Beitrag zur Kenntnis der Resorption,"‡ is just of the same character and just as erroneous as that of Schmidt-Möhlheim. Hamburger, moreover, ligated the kidney arteries, but he omitted the ligature of the ureters, which certainly would have been of greater importance.§

Before I close I wish to mention the following remarks of Ham-

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***Zoologischer Anzeiger*, May 1880, page 514 *et sequentia*.

†Archiv für Anatomie und Physiologie. Physiologie, 1877, page 549 *et sequentia*. In my first paper, page 23.

‡*Pflüger's Archiv*, Band LXXIII (1888), Supplementheft. See my first paper, page 25.

§Archiv für Anatomie und Physiologie. Abthl. Physiologie, 1895, page 281. In my first paper, pages 35 and 39.

BURGER, "Uber den Einfluss des intraabdominellen Druckes auf die Resorption in der Bauchhöhle:"* Hingegen bemerkten wir noch etwas anderes: Nachdem einmal im ganzen während zwei bis drei Stunden eine Kochsalzlösung in einer Darmschlinge verweilt hatte, sah ich Flüssigkeit in der Bauchhöhle sich ansammeln. Mángelhafter Verschluss der Schlinge war nicht Schuld, als Ursache wurde gefunden die grosse Permeabilität nach längerem Verweilen des ClNa in den Gewebsspalten des Darmes."

["Besides, we remarked still another phenomenon. Once, after leaving a common salt solution in an intestinal sling for two or three hours, I saw liquid accumulated in the peritoneal cavity. Defective closure of the sling was not to be blamed. We have to consider as the cause the high permeability of the intestinal walls which occurred after longer standing of the ClNa in the tissues" (page 322).]

It seems to me that by all this we must come to the conclusion that we have in all cases, and at any time, also a physiological accumulation of fluid in the peritoneal cavity.

Many other experiences could be quoted in favor of the statement which I made. However, in a given case everybody can draw this conclusion himself.

920 CASS AVENUE.

POSTPARTUM HEMORRHAGE.†

BY E. T. ABRAMS, A. B., M. D. HOUGHTON, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN my experience in the practice of medicine there has been no *one* thing that has caused me more worry—that has made my very hair, as it were, to stand on end like the "quills upon the back of a fretful porcupine"—than a hemorrhage following delivery. How other practitioners feel when they see the face that a few moments before was radiant with hope, joy and thankfulness, turn pale as marble; the pulse that but a second before was full and bounding, slipping away into imperceptibility, I do not know, but I, myself, resemble the ancient warrior going into battle—my knees smight mightily together. But while it is a position so trying, a position so apt to enervate at least the young man, there is no place where coolness, courage and well-grounded knowledge is more demanded. And if success crowns one's efforts he will have the satisfaction of knowing that he has gone down to the very verge of the shadow of death, and reclaimed a loved one just as the silent boatman was leaving the shores of time.

By postpartum hemorrhage is understood, as the title indicates, "a hemorrhage after delivery," and it is divided into two forms, namely, *primary* and *secondary.* By the first we understand a flow of blood occurring after the delivery of the placenta. It is said on good authority hardly ever to be delayed beyond the first hour. The bleeding may be open or it may be concealed, but in a majority of cases the two forms will be combined. By the second form we understand a flow of blood occurring from the sixth hour to within the first month.

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* Archiv für Anatomie und Physiologie. Physiologie, 1896, page 302.

†Read before the TAMARACK HOSPITAL CLUB, Calumet, Michigan.

Causes.—Innumerable as are the exciting causes of this dreadful accident, for accident it is, primary postpartum hemorrhage, the immediate causes may be summed up by saying that there is deficient *contraction* and *retraction* of the uterine fibres. In a normal obstetric case the hemorrhage which flows from the placental site is of brief duration, the arterial twigs of that surface *retract* almost immediately and spontaneously, while the venous sinuses become obliterated by the firm contractions of the uterine mass.

The flow of blood may depend in some instances upon the presence of a neoplasm, as for example, of a fibroid tumor, which by its presence prevents a uniform retraction of the uterine fibres. Retraction may also be incomplete whenever the tone of the muscular fiber is lowered, or when the emptying of the uterus is not followed by *good; firm* contractions. So too may retractions fail if there be within the uterine cavity any remaining portions of the secundines or coagula. Contractions may fail from a lowering of muscular irritability or the blood-state of the patient may be such that perfect coagulation does not occur, as for instance in Bright's disease. BLOT found in forty cases of this disease twelve cases of postpartum hemorrhage. Inertia of the uterus may follow a too rapid or a tedious labor after great distention of the uterus. It may also be caused by general feebleness of constitution or from an imperfect development of the muscular fibres. Lacerations of the genital tract are also placed in the etiologic category. PROFESSOR SCHROEDER refers to a very dangerous form of hemorrhage dependent upon an uneven contraction of the uterus, wherein, while the main body of the uterus contracts, the placental site does not participate in the contraction. The too free use of chloroform during delivery has by some been thought to be a fruitful cause of hemorrhage. Personally, I believe that chloroform is a strong predisposing cause, for in at least two cases in which hemorrhage followed delivery, one slight and the other profuse, chloroform was used for quite a lengthened period, but never beyond the obstetric degree. PROFESSOR JEWETT, of Brooklyn, taught that one of the most important things for a man to learn, was to learn to *wait.* In my own practice I know this to be true, and I cannot but believe that if time were allowed after the completion of the second stage for the uterus, as well as the patient, to rally somewhat we should have less flooding after labor than we do at present. I believe that there is a distinct third stage of labor, just as well marked and which should command our attention as much as the first or second. In my own hands I have, I am sure, once at least, set up a hemorrhage by using Crede's method in perhaps too energetic a manner, thereby forcing out into the cavity of the uterus, nature's protectors, the thrombi.

Symptoms.—The symptoms learned from the lecturer in the amphitheatre or from some text-book and stored away in the mind may be easily forgotten, but when one is an observer at the bedside, and especially if that bed is a considerable distance from any other professional friend, they will be so firmly impressed upon one's mind that all the friction of a lifetime will be inadequate to erase them. It will, therefore, not be necessary to go over them here, yet there is one symptom, for symptom I believe it to be, that I wish to call attention to, and that is the pulse; not that it is something new, although the pulse, in a great majority of cases, receives no attention. In not one of my cases did the pulse fail to give the warning. I have read somewhere that "should the pulse between the 'pains' not fall to normal or thereabouts make up your mind that a storm is ahead." We all know that one of the most notable effects of hemorrhage is a lessened force and an increased frequency of the pulse, and postpartum hemorrhage is no exception to this one.

The patient herself may give the first warning that she is flooding; after much bleeding she will present the usual picture of anemia. The pulse becomes very rapid, thready, and in extreme cases imperceptible. The respirations are rapid, shallow and gasping. The patient tosses about in a restless manner begging for air, complaining of thirst, and inability to see distinctly. The skin is cold. Syncope may occur, which may be of advantage to the patient since it may favor thrombosis in the uterine sinuses, and thus arrest the bleeding. Should the hemorrhage continue, however, loss of consciousness, convulsions, and death will quickly end the scene.

Of course, the existence of external hemorrhage is sufficiently obvious. In concealed hemorrhage the condition may be recognized by presence of some of the symptoms already enumerated. By placing the hand on the abdomen one finds instead of a hard globular mass—hard like a billiard ball—a soft, boggy tumor which extends nearly to the umbilicus. In not a few cases no uterine mass can be made out.

Prognosis.—The prognosis of this condition must depend very largely upon the causes which have led up to it, as well as upon the amount of blood lost. The most unfavorable cases are those in which, though the hemorrhage is not severe, the blood is of a bright red color and contains no clots. This form is indicative of a blood dyscrasia. PLAYFAIR says: "Recovery is oftentimes possible after the vital forces have seemingly reached their lowest ebb. If the hemorrhage can be arrested while there is still some power of reaction, life may yet be saved. Complete recovery after *severe* postpartum hemorrhage is exceedingly slow, and it may be weeks or months before the patient regains her usual vigor.

Treatment.—Prophylaxis. Postpartum hemorrhage is very largely a preventable accident. The preventive treatment must be directed to the uterine retraction. A routine practice of placing the hand on the abdomen over the uterus from the time the child is born to the expulsion of the placenta should be observed; and after the expulsion of the placenta the uterus should be watched in the same manner for at least an hour. Any tendency to abnormal relaxation should be combated by *friction*, or, if need be, by more active manipulations. When a tendency to hemorrhage is suspected, ergot, either by mouth or hypodermically, should be given. In my own practice, I prefer ergotin hypodermically, on account of its greater reliability and its more certain action. I have repeatedly given ergot by the mouth and had nausea and vomiting follow, complete relaxation being the result of the very means employed with the hope of producing an opposite effect. The use of ergot after the use of chloroform is to be particularly advised. The old-time abdominal binder may also be used to maintain retraction. A towel folded so as to form a compress may be placed beneath the binder, not over the uterine mass, but one on either side and another immediately above it. If the management of the postpartum period is carried out properly the occurrence of grave postpartum hemorrhage must be exceedingly rare.

The obstetrician should be so familiar with all the resources at his command for the arrest of uterine hemorrhage that at no time ought he be at a loss to decide upon just what to do; all needed preparations should be ready for instant use, should occasion demand. The first and paramount indication is to secure good, strong uterine contractions. The patient should be placed upon her back, the pillow removed from beneath her head, and the foot of the bed elevated. I know of no better way than to place a common kitchen chair under it, having the framework of the bed rest upon the seat of the chair. The nurse or assistant should attend to this. Sweep the hand over the abdominal wall, grasp the uterus and make friction in a circular direction, remembering that the uterus responds quicker to vigorous friction than to direct pressure. As soon as the definite outline of the uterus can be made out, the fingers should be pressed deeply into the abdominal wall behind the uterus, while the thumb rests over its anterior surface. The fundus of the uterus rests, therefore, in the palm of the hand. It should then be grasped firmly. This will tend to expel the clots and at the same time control the hemorrhage. In such conditions I never hesitate to introduce my whole hand into the vagina and uterus and thoroughly remove all clots and retained portions of the placenta or membranes. Should this not control the hemorrhage, close the hand in the uterus, and together with the external hand make firm compression of the organ.

The abdominal aorta may be compressed as a temporary means. Its main virtue lies in the fact that it often gives time for other procedures. Stimulation may be demanded, when whiskey or sulphuric ether may be given hypodermically. Strychnin may be used. The hot douche has come into vogue during recent years and is certainly a very efficient remedy. The external genitals should be smeared with vaselin to protect them from the effect of the hot water. The temperature of water should be 120° Fahrenheit but should not exceed 125° Fahrenheit lest it paralyze the uterine muscle; neither should it be below 115° Fahrenheit as lukewarm water favors hemorrhage. The temperature of the water should not be measured by the "rule of the thumb," but with a bath thermometer. The introduction of ice into the uterus as a stimulating measure is an old treatment revived. While I should not employ it very promiscuously I should not hesitate to use it in a desperate case wherein other measures had failed. The application of acetic acid, lemon juice, and alcohol to the uterine cavity is a powerful excitomoter, with none of which, however, have I had any personal experience. PENROSE, of Philadelphia, recommends vinegar.

A grave objection to all these measures is the risk of infecting the uterine cavity. I would not use perchloride of iron. Occasionally any or all of these measures will fail to control the hemorrhage. Nothing will act better or more promptly than packing the uterus with iodoform gauze. The uterus should be seized with forceps and brought down to the vulvar orifice while the fundus is steadied by an assistant. The uterine cavity is then packed or tamponed with long strips of iodoform gauze. This gauze may be removed in say twenty-four hours. After the hemorrhage has been controlled, there remains the resulting anemia to be dealt with. Normal salt solution may be used subcutaneously or by rectal injection. An Esmarch bandage may be applied to the extremities (never more than two at a time) and left on for twenty minutes at a time. And yet, gentlemen, after every resource has been exhausted some of those patients will die. It is true that "offenses must come, but woe to him through whom they come." He that is unfortunate enough to have a patient die cannot shield himself behind the fact that others have occupied like position.

TRANSACTIONS.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, FEBRUARY 12, 1900.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.
REPORTED BY P. C. McEWEN, M. D., SECRETARY.

REPORTS OF CASES.

PRACTICE OF EUGENE SMITH, M. D.

PRIMARY MASTOID ABSCESS: OPERATION.

I AM led to report this case on account of its instructive character. At the last meeting of the State Society, in a paper on "Septic Diseases of the Brain and its Membranes," I made the statement that "an extensive purulent disease of the middle ear may exist without any discharge from the external ear, and without perforation of the drum membrane." Also, "we may have a severe mastoid abscess without edema of the mastoid region," and valuable time may be lost if the attending physician waits for it to appear before he makes his diagnosis.

M. A., aged thirty-two, of Manton, Michigan, consulted me October 19, 1899, giving the following history: He was taken June 7 with a very severe "earache" and pain in mastoid region and side of head, which continued with greater or less severity in spite of treatment during the four months which supervened between the attack and the time I first saw him. At the time I first examined him there was no edema of the mastoid, nor had there been any except during the two weeks immediately preceding, when the region of the tip of the mastoid became somewhat swollen in common with a large mass of infected glands in the parotid region. There was not, nor had there ever been, any discharge from the ear externally, and the drum membrane was intact, showing no evidence of ever having a perforation. The tympanic cavity and the bony meatus were very hyperemic. The swollen glandular mass below the tip extended well down into the neck and was about the size of half a goose egg, and was hard and tender to the touch. The skin covering this matted cake of inflamed glands was red, edematous, and firmly adherent to the underlying mass. The pressure of the mastoid antrum and tip of mastoid disclosed marked tenderness. The temperature varied from normal to 100°, and his color was pale and ashy.

My diagnosis was primary mastoiditis, though I must admit that there may have been suppuration of the middle ear, the pus escaping through the Eustachian tube. I advised mastoid operation. I operated the following day, October 20, 1899, in presence of medical gentlemen and students at Saint Mary's Hospital, opening first the mastoid antrum from which pus escaped, then chiseling away the mastoid cortex to the tip, removing the latter with the rongeur, and with the bone spoons removing considerable broken-down tissue of a gelatinous consistency not yet entirely purulent. The posterior wall of the tip was very thin and soft, which probably accounts for the glandular infection, though there might have been a congenital defect in the bone. The whole mastoid was excessively hyperemic.

After the operation the temperature dropped to normal, or slightly below as is frequently the case. Now, two and one-half weeks after the operation, the mass in the neck has nearly disappeared, the mastoid opening is nearly closed, and the patient wants to go home.

PRACTICE OF HOWARD W. LONGYEAR, M. D.

MULTILOCULAR OVARIAN CYSTOMA.

Mrs. G., aged thirty-six years, mother of three children. Patient thought she was pregnant ten months ago, as menstruation ceased and the abdomen began to enlarge. Her physician began to question this at the end of six months, and called two other physicians in counsel. Menstruation was not then in complete abeyance, but was irregular and scanty. The shape of the tumor and its position in the abdomen, the soft and purple cervix with the perfect health of the patient, made the diagnosis of pregnancy probable, and yet the absence of the placental bruit and fetal heart sounds negatived such diagnosis. The tumor then seemed to be continuous with the uterus.

I saw the patient soon after this time and finding these conditions of uncertainty advised waiting for a time. At the next examination, two weeks ago, the tumor was found to be somewhat decreased in size and easily separable from the uterus. As it was freely movable its attachment to the right broad ligament could easily be demonstrated. A diagnosis of multilocular ovarian cystoma was then made and operation decided on. The diminution in size of the tumor was a little puzzling with this diagnosis, but at the operation it was explained by the appearance of quite a quantity of thick grumous fluid, free in the peritoneal cavity, indicating rupture of some of the cysts composing the tumor.

The operation was performed at the Woman's Hospital, January 4, with the assistance of Doctors R. A. Jamieson, Steinbrecher and Flintermann, and the patient is thus far making an ideal recovery.

PRACTICE OF GEORGE H. SHERMAN, M. D.

THE PROPHYLAXIS OF SCARLET FEVER.

Ever since I have been using diphtheria antitoxin in the treatment of diphtheria I have made it a practice, when the consent of the parents could be obtained, to give an immunizing dose of antitoxin to each of the exposed children of the family, with the result that not one of the immunized children contracted diphtheria.

Three years ago this month I was called one morning to see a child who complained of sore throat. Upon examination I found the tonsils swollen and covered with white patches. The lymphatic glands of the neck were also swollen, and there was considerable fever. The general condition of the little patient indicated more serious disturbance than ordinary sore throat. A diagnosis of diphtheria was made and antitoxin decided upon as the remedy to be employed in combating it. There were three other children in the family, aged four, six and ten years respectively, and an immunizing dose of antitoxin was recommended for each. I secured the antitoxin from the Health Office and in the afternoon of the same day gave each of these children five hundred units before looking after the sick child. Upon paying attention to the sick child I found I had a case of scarlet fever instead of diphtheria, the rash just making its appearance. Not knowing what effect diphtheria antitoxin might have on scarlet fever, the antitoxin was not given. Here was an opportunity for an experiment. The three immunized children had not had scarlet fever and I was anxious to know whether they would contract it. I watched them for some time and found that none of them were stricken with the disease, although they were continually exposed to it during the other child's illness. I have since then given diphtheria antitoxin to three other children, aged two, four and six years respectively, and one adult, when scarlet fever was in the family. These cases had not had scarlet fever nor did they contract it, although all but one were exposed during the entire course of the disease.

This experience may not prove anything of consequence but if diphtheria antitoxin has no immunizing effect against scarlet fever it is quite singular that not one of these seven cases should contract the disease. I shall continue to experiment with diphtheria antitoxin as a preventive measure in scarlet fever, and hope others will do likewise in order that more definite results may be obtained.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, NOVEMBER 16, 1899.

THE PRESIDENT, GEORGE A. KIRKER, M. D., IN THE CHAIR.
REPORTED BY WALTER J. CREE, M. D., SECRETARY.

REPORTS OF CASES.

PRACTICE OF WILLIAM F. METCALF, M. D.

TWO HYSTERECTOMIES.

I FOUND so much more work necessary to complete the paper which I intended to present this evening that I was compelled to lay it aside, and in order to keep my promise to the secretary I have resorted to my case-book. Two type-cases have been selected. Similar cases are met with daily by every general practitioner. They are the cases which streak the beard with gray and make deep furrows in the face of the physician or surgeon who works for results.

Case I.—Patient gave the following history at my office July 17, 1897: She was thirty-eight years of age. Her parents were healthy, and she had been well and strong as a girl. She was married at seventeen. She had two children—one twenty and the other thirteen years of age. She had had two miscarriages, the last five years ago. She was compelled to remain in bed three months after the birth of the first child. During this time she had high fever and occasional chills. She now complained of backache, headache, dragging pains in lower abdomen, and almost constant pain in the legs. She was much annoyed by distress in the stomach, and at times with palpitation of the heart. All these symptoms dated from the birth of the first child, and were steadily getting worse. Her appetite was poor.

Her menses were regular but rather excessive, and lasting from four to six days. Her hands and feet were usually cold. Pulse 94. She had been treated for several months by a competent surgeon, receiving no benefit. He had advised operation, but she would not permit it. I recognized the case as one of exhaustion of the nerve centers by constant irritation, probably peripheral, and made a careful examination, finding a laceration of the cervix uteri containing much cicatricial tissue, laceration of the perineum, slight thickening of the left tube with some enlargement of the ovary upon the same side, with no evidence of adhesions. The right kidney was movable, and there were several internal hemorrhoids. There was tenderness to pressure over the spinal processes in the lumbar region.

I advised operation as the first step in her treatment, told her that she would require prolonged rest, and that she should not expect marked improvement in less than one year. She was not satisfied with my prognosis and consulted another gynecologist, who advised not only operation upon the pelvic organs, but also kidney fixation. She decided to submit to operation and returned to me. I told her I did not believe that the movable kidney was a factor in her ill health, but since it had been advised by a competent man I would fix that at the same time.

On August 12, 1897, I curetted the uterus, repaired the cervix and perineum, removed the internal hemorrhoids and performed kidney fixation. All the wounds healed by first intention. Her nutrition was somewhat improved, but all her old symptoms remained. During September, 1897, I treated the metritis with galvanism. In January and February, 1898, I kept her in bed for six weeks under the care of a trained and competent nurse who used galvanism, massage and spinal baths. She was somewhat improved and went to California, where I advised her to remain for one year. She promised to do so and doubtless meant it at the time, but within three months she reappeared in my office. Her general health had improved, but soon she began gradually to fail. I saw little of her, however, until July 25, 1899. She was markedly reduced in flesh, and in addition to her old symptoms she appeared to be in agonizing pain.

Examination showed a fibroid the size of a small lemon in the anterior wall of the anteflexed and anteverted uterus. The pain was caused by the fundus uteri having become caught beneath the symphysis pubis. Immediate relief came when it was freed and supported with tampons of wool. I then learned that she had recently consulted several physicians who gave her, according to her understanding at least, as many different diagnoses. The next day she returned, saying she wished me to do anything that would promise any relief. I sent her to the hospital and telephoned her husband to call. I explained to him that removal of the uterus and its appendages would relieve her of pelvic pain, that the menses would in all probability be stopped thereby, that she might then gain in strength and flesh, but that on the other hand it might be an entire failure.

On July 29 I removed the uterus and its appendages per vaginam. Her immediate recovery was uneventful. She apparently suffered less than at an ordinary menstrual period. She remained at Harper Hospital about a month. There was no apparent improvement, except that her nutrition was better. I saw she was losing ground at home and sent her to Saint Mary's Hospital. She was dissatisfied with this, and returned home in a week where she has since remained in bed. She is now slowly improving, her appetite is good, she is sleeping better. She is gaining in flesh and does not have so much pain in the legs. She is yet very nervous, but I have hope. Her present treatment is—rest, fresh air and sunshine in her room, good food, bovinine, massage and spinal bathing, also nux vomica and zinc phosphide. To produce sleep she requires trional, with which I combine phenacetin and an occasional dose of chlorodyne.

Case II.—A farmer's wife gave me the following history on October 15, 1898: She was thirty-eight years of age, and had been a teacher before marriage. Her menses began at eighteen, since which time she had suffered from alternate attacks of constipation and diarrhea until one year ago when the diarrhea became constant. Her first and only child was born eight years ago. The cervix uteri was quite extensively lacerated. It was amputated two years ago by one of the best gynecologists in the state, who kept her under his care for about a year. She was subsequently under the care of a competent general practitioner, who said her whole trouble was due to chronic colitis, much mucus being passed per rectum. Extreme nervousness, which began at the time of confinement, continued to increase and was apparently made greater by operation. She had four hysterical convulsions during the past year. She was also at times troubled with nymphomania. She had much pain at base of brain and in the abdomen. Her appetite and stomach digestion were good and she slept well.

Examination showed uterus smaller than normal and hard; right ovary slightly larger and firmer than normal; left about half normal size, hard, with rough surface; there were several medium-sized internal hemorrhoids, tight sphincter ani, and contraction at sigmoid. This examination was made under chloroform October 31, 1898. At the same time I removed the hemorrhoids and dilated and washed the sigmoid, in which was found a large quantity of mucus, but no pus. Patient experienced relief for about ten days, when her old symptoms gradually returned. I kept her in the hospital for eleven weeks giving her spinal baths and treating the colon and trying in every way to improve her nutrition. I was then taken sick and she left the hospital unimproved. Her home in the country is ideal, the rooms large and flooded with sunlight. She was forced to spend the greater part of the winter in bed, however, which she did under the care of a competent physician.

In June her husband came to me saying that something must be done, that his wife was suffering more and more all the time, and he feared she would soon reach the insane asylum. Among other new symptoms the most distressing was pain while at stool. I went to his home and discovered that during the winter the right uterine appendage had become prolapsed and the ovary had increased to at least four times the normal size, and the uterine body was more sensitive. I advised vaginal hysterectomy as the only procedure offering any hope, on the ground that if the menses were stopped, and the local pain and tenderness removed, her nutrition might improve and fat accumulate, with the tendency to fix the kidneys which were both freely movable. Her husband said that he had a short time previously met the specialist who had done the first operation and who now advised strongly against any further operation, giving as his reason that every time she took chloroform she would be worse, that if the present source of pain were removed her general nervousness would be increased. In the face of this the husband took my advice, and she was brought to the city and taken to the Woman's Hospital where, on July 27, 1899, I performed vaginal hysterectomy. She took the ether badly, her heart being very weak. We were compelled to resort to saline transfusion before the operation began. In the uterus was found an excessive development of fibrous tissue. In the left ovary the fibrous tissue contraction had completely destroyed the glandular structure. It was simply a fibrous sack about one third the size of a normal ovary. In the right ovary was a hematoma the size of the end of the thumb, the rest of the ovary was fibrous. In a letter received from this patient, written by herself, and dated October 11, she states that she has entirely recovered and is doing her own housework.

In the first case reported the uterus was subinvoluted. It contained an excessive amount of connective tissue which had not undergone contraction. In the second case there was hyperinvolution. The connective tissue had undergone contraction crushing out the muscular. The same condition maintained in the ovaries and tubes of the respective cases, the uterus being the index. Neither case I maintain could have been benefited by treatment. Was the general condition in both cases due wholly to the local condition found in the pelvic organs is the question which naturally arises?

636 Woodward Avenue.

EDITORIAL ARTICLES.

THE NEGLECT OF PHARMACOLOGY.

The United States Pharmacopeia is now in process of being revised and the comment is made that practicing physicians, instead of participating in and directing the work, are scarcely in evidence. When it is remembered that the pharmacist compounds whatever the physician proposes to prescribe, it does seem rather inconsistent for the former to determine what shall and what shall not be standard and officinal. That is, however, what is indicated in the present condition of affairs. The remark made in extenuation of the physician's attitude that he is too busy and cannot spare the time is courteous indeed, but it is not altogether plain how it applies now and not formerly. After eliminating the effect of the increasing army of doctors and the limitations of the small incomes of earlier years the conclusion is inevitably reached that we have already drifted from the viewpoint of our predecessors.

Bearing on this subject for thought *The Therapist* recently quoted a statement by Doctor William Murrell that "A race of men is growing up who know nothing about drugs or their actions, and who are often incapable of prescribing the simplest mixture," and also granted its accuracy. This remark, we take it, applies particularly to English schools. It would seem from the indifference manifested in the revision of the United States Pharmacopeia that a similar race of men were growing up on this side of the water. Most American medical schools exact a stated amount of dispensary training from all their students but it is by no means certain that in any of them there is an amount of training received equivalent to that which was obtained under the old apprenticeship system. It must be admitted that a change or process of evolution is going on. The enormous manufacture of tablet doses of all kinds and combinations of drugs and the upbuilding of large enterprises for such purposes and by such means indicate it. We are not willing to admit that pharmacists are actually doing our thinking along these lines but facts do apparently warrant the belief that we are neglecting the practical if not the theoretical study of pharmacology. Whether we have gained anything else of greater value is a matter of doubt.

ANNOTATIONS.

DISEASES PREVALENT IN THE PHILIPPINES.

Of the commercial resources of the Philippines there has been no question. Of their habitableness for Americans there have heen expressed many times grave doubts. With the constantly high temperature making perpetual summer and a humid atmosphere the climate is very enervating, as our soldiers have fully realized. The diseases with which American soldiers have had to contend in Luzon are, according to the report to the Philippine Committee of the Johns Hopkins University Medical School, in the main such as accompany the prosecution of any similar campaign. Diarrhea and dysentery, typhoid fever, the malarial fevers, tuberculosis and wound infection are responsible for most of the sickness among our troops. An epidemic of dengue was observed by Doctors Flexner and Barker of the visiting commission at Cavite and the disease was known locally as Cavite fever. A form of indolent ulceration was also found upon those especially who had endured long marches through swampy districts. The natives in Manila and Cavite, who represented the diseases common to Luzon and the entire group, were found affected with skin diseases such as itch, boils and scalp affections, smallpox, leprosy, tuberculosis, venereal diseases and beri-beri. Smallpox seems to have a diminished virulence among the natives as they appeared to have little fear of it. Leprosy has a definite existence in Luzon, about one hundred lepers being congregated in the San Lazaro Hospital. Tuberculosis was frequently met in the hospitals and at autopsies. Chancroids and gonorrhea appeared to prevail rather more than syphilis. Beri-beri appears sporadically and an epidemic of it developed in Cavite during the visit of the Commission. The influence of the climate was not disputed but the impression obtained from the report is that under the persistent administration of regulations tending to hygienic conditions the Philippines may be rendered habitable to civilians as well as soldiers.

GLORY ENOUGH FOR BOTH.

THERE is perhaps nothing beset with greater difficulty or more embarrassment than the establishing of a prior claim to a great discovery or invention. The discovery of America and the invention of the telegraph still provoke disputes. EMMET is even now endeavoring to obtain a just recognition of his association with SIMS in the development of gynecology. JENNER is inseparably connected with the introduction of vaccination, and yet there is now no doubt but that he was preceded by at least one other by more than twenty years. McCRAE has recorded in the *Johns Hopkins Hospital Bulletin* that BENJAMIN JESTY, a farmer of Downshay in the Isle Purbeck, in Dorset, having taken cowpox casually from the cows and being thereby protected from smallpox, then prevalent in that locality, inoculated his wife and two sons with the cowpox. It is stated that the patients went deliberately into the fields and were inoculated directly from the teats of the cows, a stocking needle being used. The sons recovered promptly but MRS. JESTY's arm became so inflamed as to require the help of a neighboring surgeon. This incident occurred in 1774. JENNER did his first vaccination in 1796, and introduced it to the world, whence his fame. The evidence concerning JESTY, however, is conclusive and entitles him to recognition, for, like the Battle of Santiago, there is glory enough in it for both.

CONTEMPORARY.

TUBERCULOSIS: THE DAWNING.

[H. H. SPIERS, M. D., IN THE CINCINNATI LANCET-CLINIC.]

WITHIN memory of the present writer a health officer declared one dying of consumption should not be carried in a public conveyance unless the casket be hermetically sealed. Reason: The danger from germs is so great the public demands precaution and protection.

Germs, in some localities, are yet considered dangerous—dangerous in that their true action or condition of growth is not clearly understood. We must live and learn.

Thanks to an enlightened public sentiment, the above order is obsolete. Other orders will be obsolete ere long. The light is gently breaking, and soon we will behold the sun in his effulgence. The writer thinks he will bring healing in his wings. Give us the light!

For the past two decades we, as a people, have been harassed by the announcement that milk and its products—cheese and butter—are full of tubercle bacilli. We have also, during the same period, been studiously taught that as tubercle bacilli cause tuberculosis, these products are dangerous and should be inspected. A government inspector, as in Germany, has been urged. They say the people should be taxed and microscopists should pass sentence on all milk products placed upon the market. In this way tuberculosis could be controlled. In the meantime, until such inspection, we are advised to avoid cheese, boil butter and sterilize the milk, some even going so far as to counsel the eating of butter while hot through an aseptic tube.

The writer, in his weak way, at various times has denounced these statements as fallacious. In the first place, he argues that tubercle bacilli do not primarily cause tuberculosis. Tuberculosis is a constitutional disease, is based on law, and the bacilli enter secondarily. *The constitutional disease allows the natural entrance and growth of the germ.* On this topic the author challenges controversy.

If tuberculosis be a constitutional disease, the disease preceding the germ's growth, milk is a diseased product *before the entrance of the growing germ;* therefore, killing the germ by sterilization would not render it a perfect milk. This was shown by the writer in 1894 (*vide* "Transactions Ohio State Medical Society").

If the milk be imperfect, milk products are also imperfect, and *no microscopist could detect this imperfection by the presence or absence of tubercle bacilli in said product.* Microscopical inspection is therefore a useless expense. We pay taxes enough in this direction already.

As stated, the writer has attempted to clear the way for microscopical entities. The replies have not been numerous; in truth, as a rule writers have stood aloof. Is there a reason why? From the hills of New Hampshire we receive the following:

"Experiments as well as observations made in the last few years lead us to believe that tuberculosis is much less often communicated to man through milk than was formerly supposed."—*New Hampshire Sanitary Bulletin*, January, 1900.

A closer observation, we feel assured, will lead to the conclusion that tuberculosis is not conveyed in this way at all, only under certain conditions. These will be spoken of later on.

But who are making these experiments and observations, and what is their intrinsic worth? The professors of the United States agricultural experiment stations are largely doing the work. The reports are of value according to the ability, honesty and common sense of the ones making them. Honesty we naturally expect.

Some men are downright liars. Common sense and ability, like twin sisters, walk hand in hand. Sometimes they are found alone, but only for short periods of time. They soon come together. They think so much of each other that they are close companions; nothing can separate. So far as we can ascertain, these men for the major part, are germ theorists. For convenience, we divide them into theorists of the first and second waters. Theorists of the first water believe the germ *per se* is all in all. Professor Robert Koch and his congeners belong to this class. Men of this stamp believe germs are veritable Napoleons, carrying devastation, disease and death. Theorists of the second water believe there are germs and germicides; also a few other things worthy of notice. Doctor Russell, of Glasgow, Scotland, and Professor Russell, of the Wisconsin station, are men of this class. They believe germs have a mission, but it is inferior to the mission of the beings they infest. In other words, *men are superior to microbes.*

It is a common impression that first-water men are graduates of German schools, while second-water men have not crossed the North Atlantic. This is a mistake. Many first-water men are found who never crossed their State line, while some second-water men have visited many cities of Europe, and *vice versa.* Where one has traveled is of little worth. *What does he know?* This is what the world is asking. This it will ultimately find. One may deceive himself forever. He can deceive the vast intelligence of mankind but for a short time. Deception is short lived.

From the Storrs Agricultural Experiment Station of Connecticut, eleventh annual report, we find experiments were made by feeding eight calves with milk from tuberculous cows, and that without infecting the former. These calves were fed for periods varying from three months to sixteen months without developing the disease. The report is closed in brief, from which we extract the following sensible words:

"We know comparatively little regarding the conditions which favor the spread and development of tuberculosis among animals or man."

Evidently, the above was penned by a germ theorist of the second water. The second-water theorist knows but little in his own estimation; the first-water theorist knows it all. When one rises to the admission he knows but little, he is in position to take the first step to obtain more; when one knows it all there is no incentive. He is practically dead and only needs burial.

That little is known, as yet, regarding the conditions which favor the spread and development of tuberculosis among animals, may be seen by consulting Bulletin 108, June, 1899, issued by the experiment station located at Wooster, Ohio. Ohio as a state is in many regards a leading one. The presumption is our men at Wooster are as competent as others. Why not?

"The herd of cattle at this station was established in 1894 by the purchase of a bull and two or three cows, each of the Jersey, Guernsey, et cetera. . . . At the time these purchases were made the idea was prevalent that the tuberculin test might be injurious to the health of the animal. . . . For this reason the test was not insisted upon, et cetera, et cetera. On the station farm they were, of course, given good care, et cetera. All the increase was retained, and by the spring of 1897 there were about eighty animals in the herd, all apparently in perfect health except two—a shorthorn cow and a Jersey bull, which had begun to show evidences of disease; the cow by rapid loss of flesh and the bull by the growth in the throat of a visible lump, which caused difficulty in breathing. At the beginning of June both these animals were killed, after having been subjected to the tuberculin test. The cow was found to be in the last stages of generalized tuberculosis, and the lump in the bull's throat was found to be due to the same disease. A supply of tuberculin was then procured, and in December and January further tests were made, and on June 8, 1898, fifteen cattle were slaughtered."

Then follow temperature before and after these injections, and the result as found after death—a very interesting report.

These gentlemen should be congratulated. But the writer is not satisfied, in that the report is incomplete. It is incomplete in that the same number of animals were not chosen by the tuberculin test and placed under similar conditions. We would then have two lists of animals, one chosen by general appearance or inspection and one by the tuberculin test. Should the first lot develop tuberculosis we could say, as in this case, it is lack of the tuberculin test in selection. Should the second, after the test, develop tuberculosis, what could we say? *Either the test is inefficient or there is other cause of tuberculosis.* Which would it be? The writer asserts that after the tuberculin test tuberculosis will develop, though more slowly. Why?

(*a*) Tuberculin determines the presence of growing bacilli.

(*b*) Tuberculin has no value in diagnosis.

(*c*) Tuberculin has no certain value in differentiation of first stage.

(*d*) Tuberculin is sometimes dangerous.

The writer holds these conclusions tenable. But our method of experimentation would be along a different line. We claim the precedent state is the first stage of the disease tuberculosis; that this state is caused by suspension of atmospheric influence and is based on law; that suspension takes place from within and from without. Our questions for answer would be as follows:

(1) Does suspension of atmospheric influence cause a condition of system that allows the tubercle bacilli a natural entrance and growth? Take a healthy animal and subject it to this test. Answer, yes or no.

(2) Is there more than one method of suspension? Experiment on an animal. Answer, yes or no.

(3) Is there an anatomical difference in the lung tissue of health and of heredity or of acquired influence? Subject the lung tissue of each to rigid microscopical examination or other scientific test. Answer, yes or no.

(4) Is there a test, chemical, microscopical or otherwise, which will determine the difference in the blood of health and that of suspension of atmospheric influence? Has science a delicate test? Apply this test to the living animal. Answer, yes or no.

When these experiments have been made and correctly answered the law of tuberculosis will read as follows: The death rate from tuberculosis is in direct ratio to abeyance of atmospheric influence.

MEDICAL NEWS.

THE MEETING OF RAILWAY SURGEONS AT DETROIT.

THE thirteenth annual meeting of the International Association of Railway Surgeons was held in Harmonie hall, May 30, 31, and June 1, under the presidency of Doctor Albert I. Bouffleur, of Chicago, who received the gavel from Doctor Donald Maclean, chairman of the committee of arrangements, after he called the gathering to order. Over two hundred members were present, many of them being accompanied by their wives and daughters. A goodly number of papers were read on subjects pertaining to railway surgery.

Among the questions receiving attention was that of "First Aid," and after considerable discussion thereon the executive committee was empowered to determine the advisability of issuing a book of instruction for railway employes; of distributing circulars giving details relative to organizing classes for instruction; of arranging a syllabus of five lectures to be delivered by one of the surgeons of each road; and of awarding certificates signifying expertness in the principles of first aid. A standing committee was appointed to further the teaching of first aid principles to employes of railways now covered by the association. Quarantine against yellow fever was considered and the sense of the meeting thereupon embodied in the declaration that the National Marine Hospital Service, through the surgeon-general and his assistants, should cooperate with the state, county, and city quarantine officials, when necessary, to render quarantine efficient against the dread disease; and that Congress be petitioned to grant the service necessary power to accomplish the desired purpose.

The pleasure features of the occasion included a railway trip to the Saint Clair tunnel, a trolley ride to Mount Clemens and supper at the various hotels, a boat ride to Lake Saint Clair with refreshments, and a visit to the laboratories.

Doctor W. H. Caldwell, of Freeport, Illinois, will represent the association at the International Medical Congress which convenes at Paris in August, and Doctor Allen Staples, of Dubuque, Iowa, is the delegate elect to the meeting of the British Medical Association which will be held at London in the same month. Regular officers for the ensuing year are: President, Doctor H. L. Getz, Marshalltown, Iowa; first vicepresident, Doctor B. P. Brodie, Detroit; second vicepresident, Doctor J. P. Kaster, Topeka, Kansas; third vicepresident, Doctor G. Call, Springfield, Ohio; fourth vicepresident, Doctor J. Stewart, Houston, Texas; fifth vicepresident, Doctor J. B. Hulett, Middleton, New York; sixth vicepresident, Doctor W. Bruce, Toronto, Ontario; seventh vicepresident, Doctor G. Cox, Everett, Washington; secretary, Doctor Lewis J. Mitchell, Chicago; treasurer, Doctor E. R. Lewis, Kansas City.

The association is in a prosperous condition and has a bank account of $1,870. Hereafter the meeting will be held at least four days after Memorial Day. The Detroit meeting was pronounced the best in every particular in the history of the association.

AN EXCHANGE OF COURTESIES.

In response to an invitation from the Wayne County Medical Society the Washtenaw County Medical Society visited Detroit on the 24th of May and were delightfully entertained as guests of the sister guild. On the arrival of the Washtenaw physicians in Detroit they were met by a committee and members of the Wayne society, who had electric cars in readiness to convey the entire party to the magnificent new laboratory of Frederick Stearns & Company, located on Jefferson and Bellevue avenues, where several hours were interestingly spent in viewing the various departments and observing the modern methods of preparing medicines from the crude drugs, after which a very delicious luncheon was served by the firm. A trolley jaunt was next in order and kept the doctors occupied until time to attend the Wonderland theatre, which was the succeeding number on the program for the evening diversion. After the performance a supper was served at the Griswold House, where speeches fraught with expressions of good-fellowship were exchanged between the societies. During this stage of the proceedings the Washtenaw party were regretfully obliged to withdraw in order to catch the last car. The event was a continuous round of recreation and gave evidence of genuine fraternal feeling.

EXPERIMENTS ON THE FOOD VALUE OF ALCOHOL.

In June, 1899, Doctor W. O. Atwater of the Wesleyan University, Middletown, Connecticut, gave a report of some experiments undertaken by him regarding the food value of alcohol before a local club. Five months later the record of his work appeared in official form in "Bulletin 69 of the United States Department of Agriculture." His conclusions were reached after confining a man in an air-tight metal cage and supplying him with carefully measured portions of food, air and alcohol and noting the total products in heat and energy. Briefly, Professor Atwater argued that alcohol was a food for a threefold reason. (1) It is oxidized in the body. (2) In the oxidation all the potential energy of the alcohol is transformed into heat and external muscular power. (3) It protects the body material from consumption just as effectively as corresponding amounts of sugar and starch.

These conclusions might have passed unnoticed if they had not immediately been made by newspapers and journals friendly to the liquor interests a text for bitter attacks upon the public school textbooks on physiology, the pulpit, the temperance platform, and the allied societies working in the interest of temperance, and given the widest circulation. Professor Atwater's position at the present time is hardly an enviable one. Adopted as the prophet, seer and high priest of the liquor interests, with or without his consent, he is now being subjected to the severest and apparently deserved criticism by the most eminent scientists, the value of his experiment questioned, and his conclusions denied. These criticisms and analyses are too extensive for publication, in this journal, but appear in the form of a pamphlet, entitled "An Appeal to Truth," issued from 3 and 5 West Eighteenth street, New York, and are valuable to any interested in this subject. Its contributors include such men as Doctor

C. A. Herter, Professor of Chemistry in the University and Bellevue Hospital Medical College of New York; Doctor Winfield S. Hall, Professor of Physiology in the Northwestern University Medical School of Chicago; and Doctor Seneca Egbert, Professor of Hygiene in the Medico-Chirurgical College of Philadelphia.

THE DETROIT COLLEGE OF MEDICINE.

The closing of the session that marked the thirty-second year in the existence of this institution was characterized by clinical week, graduation exercises, and a delightful banquet.

The clinical feature was especially intended for visiting alumni, but physicians generally were welcome. About one hundred took advantage of the opportunity to enhance their professional skill by observing the diagnostic, operative, and laboratory demonstrations which were conducted by various clinicians at the college building, city hospitals, and county house during the whole of four days. A very enjoyable social event of the week was a reception tendered to the Alumni Association by Doctor and Mrs. J. H. Carstens at their charming Woodward avenue home. At the conclusion of postgraduate work the association convened at Harmonie hall for the annual transaction of business and crowned their labors by the election of Doctor Don M. Campbell to the presidency of the organization, thereby insuring its continued welfare and conferring honor upon a worthy member.

Graduation exercises were held in the evening at Light Guard Armory, and as usual the attendance exceeded the seating capacity. The addresses of the occasion were delivered by Doctor W. P. Manton and Judge J. W. Donovan, the former's subject being "Posthom Shadows in Medical Science," and the latter's "Opportunity." The degree of Doctor of Medicine was conferred upon a class of fifty-six which was composed of gentlemen answering to the following names: G. J. Anderson, G. A. Bachman, P. H. Banta, F. S. Beaty, A. O. Boulton, C. M. Braidwood, A. J. Brower, H. K. Bryant, B. B. Butler, J. F. Cardwell, A. W. Chase, H. Cook, C. J. Cragg, E. A. De Camp, A. G. Dellenbaugh, L. B. Dochterman, E. E. Evans, D. Ferguson, P. H. Fisher, H. J. Graham, R. M. Greenshields, S. C. Gurney, T. F. Heavenrich, G. E. Henson, D. E. Hills, H. H. Learmont, A. B. Lenington, G. B. Lowrie, S. G. McDonald, J. G. McGuffin, H. E. McLennen, K. H. Mallarian, R. T. Mason, W. J. Maurits, H. C. Miller, J. A. Miller, J. L. Murray, S. C. Norton, J. Pedden, E. H. Porter, C. Ramoth, B. Richardson, G. H. Rigterink, F. L. Seger, W. F. Shaw, B. Z. Smith, C. A. Stewart, L. L. Stewart, F. Stricker, G. A. Thomas, J. Vermeulen, F. C. Wade, D. Waters, W. C. Wilkinson, P. H. Wilson, A. H. Wilton.

The banquet at Hotel Cadillac was a delightfully refreshing finale to commencement week. The four hundred students and alumni gathered round the festive board were entertained physically and mentally until long past the midnight hour. The spread was appetising and the speeches apropos. Toasts were responded to by Judge J. W. Donovan, Doctor David Inglis, Reverend S. S. Marquis and Doctor E. E. Evans, of the graduating class. The toastmasters were

Doctor Charles A. Devendorf and Attorney Clarence A. Lightner, and the flashes of wit and humor that emanated from the speakers suggested a vieing with each other for the crown of laurel, and were prodigiously appreciated.

MINOR INTELLIGENCE.

Doctor Cornelius Van Zwaluwenburg, formerly of Kalamazoo, has located at Riverside, California.

Doctor B. H. Earle, formerly stationed at Chicago, has been ordered to the assistant surgeoncy of the Marine Hospital at Detroit *vice* Doctor J. W. Amasse, who has been transferred to Honolulu.

Doctor Henry B. Baker, Secretary of the Michigan State Board of Health, read a paper on the "Communicability and Restriction of Consumption" at the American Congress of Tuberculosis held in New York in February, 1900. The complete proceedings of the Congress are to be published and may be obtained of Clark Bell, 39 Broadway, New York, by remitting three dollars.

Captain E. L. Munson, assistant surgeon in the United States army has secured the award of the one hundred dollars in gold (or a medal of that value, as the successful contestant might elect) presented to the Military Science Institution by Doctor Louis L. Seaman, late major surgeon of the First United States Volunteer Engineers, for the best paper on the subject of "The Ideal Ration for an Army in the Tropics."

The American Medico-Psychological Association held its annual meeting at The Jefferson, Richmond, Virginia, May 22 to 25. The annual address was delivered by Doctor J. Allison Hodges of Richmond. The program included a large number of papers and Michigan alienists were represented thereon by Doctors C. B. Burr, of Flint, I. H. Neff, of Pontiac, Doctor A. MacGugan, of Kalamazoo, and Doctor C. W. Hitchcock, of Detroit.

Mary R. Melindy, a homeopathic physician of Chicago, has instituted legal proceedings to recover $25,000 from the Wells & Richardson Company, of Burlington, Vermont, for damages sustained to her professional reputation by the use of her name in an advertisement of Payne's Celery Compound. The doctor admits that she wrote a letter to a friend regarding the medicine but claims that portions of the letter were used by the defendants without her consent.

W. B. Saunders, the Philadelphia Medical book publisher has associated with himself under the firm name of W. B. Saunders & Company, two of his efficient employees, Mr. F. L. Hopkins, manager of the subscription department, and Mr. T. F. Dagney, manager of the publication department. Mr. W. D. Watson, who has been in charge of the trade book department of the house for the past eight years, will continue his services in that position. It is believed that the partnership will strengthen the standing of the house with the medical profession as it will secure a permanence of organization calculated to insure perpetuation of the business.

THE Wayne County Medical Society held a memorial meeting at the Russell House on the 31st ultimo to pay tribute to the memory of Doctor George E. Frothingham, recently deceased. Doctors Edgar B. Smith and John J. Mulheron read papers, and Doctors Edward W. Jenks, Hal C. Wyman, John L. Irwin, Alvah N. Collins, John E. Clark, Louis E. Maire, Kenneth Gunsolus, William C. Stevens, Henry C. Judson, and George G. Gordon made remarks portraying the sterling character, professional skill, and exemplary citizenship of the lamented physician.

THE monetary value of a fixed kidney over a movable one has been decided by a New Jersey court to be $8,000. A man and his wife were aboard a train on the Pennsylvania railroad, when the latter was thrown to the floor by a jolt occasioned in attaching an additional coach. Her physician testified on the trial that this concussion loosened the kidney from its moorings and allowed it to wander aimlessly about, and the court awarded her that sum. The husband also was given $2,000 to compensate him in a measure for living with a woman possessed of such an anomaly.

DOCTOR LUKE E. SCHELL, a rising member of the Detroit profession, recently succumbed to an attack of appendicitis at Harper Hospital after an illness of ten days. The doctor was thirty-six years of age, and became a Doctor of Medicine in 1892, winning a gold medal for high standing in his studies at the Detroit College of Medicine. He afterward served one year as senior physician at Harper Hospital, and was a continuous member of the Polyclinic staff of the hospital to the time of his demise, likewise being assistant to the chair of physiology in the Detroit College of Medicine. A widow and one child survive him.

ONTARIO is moving in the direction of the establishment of sanatoria for consumptives. Honorable Mr. Strallon, provincial secretary, has introduced a bill in the Ontario legislature providing provincial aid to sanatoria established by municipalities or groups of municipalities. The provisions of the bill throws the burden of establishment upon the cities or villages and provides for an appropriation from the provincial government to the extent of one-fifth of the expense for purchase of grounds and buildings, such one-fifth, however, not to exceed $4.000, and the weekly payment from the provincial treasury of $1.50 per week for each patient under treatment. Beyond this the province does not assume any liability.

THE problem of overcrowding in the medical profession has been settled by the Russian government in a way which could only be adopted by an absolute monarchy, but which will be no less effective in accomplishing the purpose intended. By a decree of the minister of education, admission of first year students to the several medical colleges is restricted to the following number: The University of Moscow, 250; Kieff, 200; Charkow, 175; Dorpat, 150; Warsaw, 100; Tonisk, 120; and Kasan, 100; a total of 1,095. Allowing that seventy-five per cent. complete the course and are graduated, this would mean the equipment of only about 725 each year to fill the depletions in the ranks of regular practitioners resulting from death and desertion.

RECENT PUBLICATIONS.

REVIEWS.

NOTES ON SURGERY FOR NURSES.*

THE utility and adaptability of this little work to the nursing profession is attested by the four editions of it which have been exhausted and have created a demand for the fifth. It is a very readable book.

*By Joseph Bell, M. D., F. R. C. S. (Edinburgh), Consulting Surgeon to the Royal Infirmary, and to the Royal Edinburgh Hospital for Sick Children. Oliver & Boyd, Tweedale Court, Edinburgh.

GYNECOLOGY.*

ON general principles quiz-compends are poor substitutes for proper text-books. As a side help, however, they are often very useful, and from this point of view we have no hesitancy in recommending this little work. In this, the second edition, it is revised, modern and correct.

*By William H. Wells, M. D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, et cetera. P. Blakiston's Son & Company, Philadelphia.

EXAMINATION OF WATER.*

THE analysis of drinking water as conducted today presupposes a fund of knowledge and embraces a complexity of technique of which the analyst of a generation or more ago little dreamed. We refer to the bacteriological side of it. This small manual presents the underlying principles of both chemical and bacteriological tests in a clear and succinct form.

*By William P. Mason, Professor of Chemistry, Rensselaer Polytechnic Institute, et cetera. John Wiley & Sons, New York.

ORGANIC MATERIA MEDICA.*

THIS work has for years been the standard text-book on this subject, and in its present revised form upholds the standard which its author first gave it. It is readable, well illustrated and of convenient size.

*By John M. Maisch, Phar. D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. New (seventh) edition, thoroughly revised by H. C. C. Maisch, Ph. G., Ph. D., Professor of Materia Medica and Botany in the Medico-Chirurgical College of Philadelphia, Department of Pharmacy. In one very handsome 12mo. volume of 512 pages, with 285 engravings. Cloth, $2.50 net. Lea Brothers & Company, Publishers, Philadelphia and New York.

DISEASES OF THE NOSE AND THROAT.*

THIS handy volume is indeed a concise and very complete manual of laryngology. The author has devoted special attention to diagnosis and treatment, the practical features of the subject, and made it of great utility to students and practitioners alike.

*By Cornelius G. Coakley, M. D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York. In one handsome 12mo. volume of 536 pages with 92 engravings and 2 colored plates. Cloth, $2.75, net. Lea Brothers & Company., Philadelphia and New York.

ELECTRO-HEMOSTASIS.*

THE advances in operative surgery, which the author of this work has been at considerable pains to describe, the progressive surgeon cannot afford to overlook. Compared with the possibilities of electro-hemostasis as outlined herein all other methods, including the ligature, are back numbers. The work is finely illustrated and the publishers have exhibited their art in the most attractive style.

*By Alexander J. C. Skene, M. D., L. L. D., Professor of Gynecology in the Long Island College Hospital, Brooklyn, New York, et cetera. D. Appleton & Company, New York.

LABORATORY GUIDE IN QUALITATIVE CHEMICAL ANALYSIS.

THE purpose of this book is well defined in its title. Being a teacher with no little experience the author has developed certain originalities which appear in his work. It is interesting to observe that he has considered the medicinal uses of lithium of sufficient moment to classify it with the commoner metals.

*By H. L. Wells, M. A., Professor of Analytical Chemistry and Metallurgy in the Sheffield Scientific School of Yale University. John Wiley & Sons, New York.

THE DISEASES OF CHILDREN.*

THIS is a work of more than ordinary pretension. Coming as it does from the pens of a surgeon and a physician it fairly presents the whole subject in a complete and equable manner. The editor has adapted it in every way to the needs of American students and practitioners.

*By Henry Ashby, M. D. (London), F. R. C. P., Physician to the General Hospital for Sick Children, Manchester, et cetera, and G. A. Wright, B. A., M. B. (Oxon), F. R. C. S. (England), Assistant Surgeon to the Manchester Royal Infirmary, and Surgeon to the Children's Hospital, et cetera. Fourth edition. Edited for American students by William Perry Northrup, A. M., M. D. Longmans, Green & Company, New York, 1900.

The Physician and Surgeon

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ORIGINAL CONTRIBUTIONS.

ADDRESSES.

THE BUBONIC PLAGUE.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE province of Yunnan in China adjoins French Tonkin and British Burmah. It is of interest to the student of epidemiology because from this mountainous and difficultly accessible region there has issued but recently a disease which has been considered as practically extinct. Frightful as have been the ravages of the pest in the middle ages, it is noteworthy that during the past hundred years, with the exception of two slight outbreaks (Noja in Italy in 1815, and Vetlianka in Russia in 1878), the disease has been unknown in Europe. During this time the pest has not been extinct, but has existed to a greater or less extent in certain parts of Asia and in Africa. Four and possibly five of these endemic foci are known today. The province of Yunnan is one of these regions. The mountainous district of Gurhwal, lying along the southern slope of the Himalayas, is another center where the pest has continued to prevail. The recent travels of KOCH in Eastern Africa have brought to light a third region about Lake Victoria, in the British province of Uganda, and the German Kisiba, where the plague has existed from time immemorial, cut off as it were from the outer world. Only last year SAKHAROFF called attention to a fourth focus in northeastern China, and it is quite likely that a fifth focus exists in Arabia. These regions are of great importance in so far as the existence of permanent endemic foci sheds not a little light upon the development and spread of those great epidemics which, like great tidal waves, have in the past swept over whole countries and even continents.

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*Delivered before the Alumni Association of the Medical Department of the University of Michigan.

It is not known when or from whence the pest was first introduced into Yunnan. Unquestionably, it has existed in the extreme western parts of the province for many decades. Eventually the disease spread throughout the province and frightful ravages are known to have occurred in 1871–73. Repeated visitations of this dread disease have taught the natives of Yunnan, as well as those of Gurhwal and of Uganda, to desert their villages as soon as an unusual mortality was found to prevail among the rats. In spite of the frequent recurrence of the plague, it did not spread to neighboring provinces, largely because of the fact that little or no communication exists between Yunnan and the adjoining Chinese states. Recently, however, the plague did succeed in crossing the frontier, and, in so doing, it has given rise to an epidemic which, as will be presently seen, has already made an unenviable record and has a future that no one can foretell.

The way in which the disease spread from Yunnan has been quite clearly established. Along the Tonkin frontier, throughout the provinces of Quan-si and Yunnan, the Chinese maintain a large number of military posts. Mule supply-trains for these posts passed from province to province over the difficult mountain paths. The mule-drivers were natives of Yunnan. In 1892 the plague existed in Yunnan, and it was in the summer of 1893 that the disease appeared at Long-Tcheou in Quan-si among the Yunnan mule-drivers. These drivers arriving at the post of Lieng-Cheng, after one of their journeys from Yunnan, repaired to the city of Long-Cheou, about ten miles distant. During their sojourn in this city the muleteers developed the first known cases of the plague. From these men the disease spread throughout the city and to the neighboring posts and villages.

From Long-Cheou the plague descended the Canton River and reached Naning-Phu. From thence it followed overland to the seaport Pakhoi, some hundred and fifty miles distant. A few months later, in February, 1894, it reached Canton, either by descending the river from Naning-Phu or by boat from Pakhoi. That the plague at Canton, in 1894, had not lost any of its old-time destructiveness, is seen in the fact that it is estimated to have caused not less than one hundred thousand deaths in Canton in the short space of two months.

From Canton the plague spread to Hong Kong in April, 1894. It was during the existence of this epidemic at Hong Kong in 1894 that the first bacteriological studies of the disease were made and resulted in the discovery of the plague bacillus. In the fall of 1894, the disease died out in Hong Kong, but it reappeared in 1895 and 1896. Considering the fact that Hong Kong is one of the most important maritime centers, it is not surprising to find that in the spring of 1896 the plague was carried by shipping to the Island of Formosa. It is quite certain that about the same time the plague was carried from Hong Kong to Bombay. At all events, the existence of this disease was recognized in Bombay in September, 1896, by DOCTOR VIEGAS. Previous to this date, the mortality in Bombay was abnormally high, undoubtedly due to the highly unsanitary condition of the overcrowded city.

The existence of famine in India, together with the filthy, overcrowded condition of the population, enabled the plague to gain a firm foothold in a relatively short time. Indeed, there can be no doubt but that the disease was well established at the time it was first recognized. It is no wonder, then, that in spite of the most stringent precautions the disease spread like wildfire, so that, in a short time, the weekly deaths from the plague rose to nearly 2,000. In the face of such a relentless enemy, it is but natural that a large proportion of the population should seek safety in flight. It is believed that fully 300,000 people left Bombay shortly after the plague developed. There can be no doubt but that these refugees, directly or indirectly, carried the disease to the neighboring villages, and thus contributed to the enormous dissemination of the pest throughout western India. In the Presidency of Bombay there were reported, in less than three years, more than 220,000 cases with more than 164,000 deaths. When it is furthermore recognized that the natives concealed the existence of the disease as much as possible, it will be evident that these figures reveal a partial but, nevertheless, grim truth.

With Bombay and the surrounding country thus seriously infected, it became merely a question of time when the disease would be carried to other ports and countries, by vessels and by overland routes. In spite of the sanitary perfection which we may flatter ourselves as having attained in recent years, it is nevertheless a fact that the disease is slowly but steadily and, as it were, stealthily invading port after port. That the sanitary methods, however, are not at fault is seen in the fact that, when an early and prompt recognition occurred, the disease has been held in check. The insidious spread of the disease is rather due to the enormous development of commerce and to the rapid means of communication with distant countries.

From Bombay the plague has spread to ports on the Persian Gulf, on the Red Sea, and has reached Alexandria. Aden, Djeddah, Port Said, Cairo have all had outbreaks of the disease. Isolated cases have been met with in London, at Saint Petersburg and in Vienna. However, only two appreciable outbreaks have as yet occurred on European soil. The first was that at Oporto in Portugal, where one hundred and sixty cases with fifty-five deaths have developed up to the present time. The other outbreak occurred at Kolobovka, a village near Astrakhan. Of the twenty-four cases that developed there in July and August, 1899, twenty-three died.

In addition to following the great international highway of Suez, the disease has insidiously spread to the countries of East Africa. Mauritius and Madagascar, with the adjoining mainland of Mozambique and Lorenzo Marquez, have become more or less infected, and, if reports are to be credited, it has also appeared in one of the Boer towns and also on the Ivory Coast in Western Africa. Last fall the disease reached South America. It apparently was first recognized at Santos in Brazil during October, although early in September, according to reports, a peculiar disease, causing swelling of the glands and death within forty-eight hours, was reported at Asuncion, the capital of Paraguay. At the present time Rio Janeiro is infected. The sanitary condition of these South American cities is far from being the best, and, consequently, there is but little hope that the disease will be eradicated or even held in check. With South America more or less thoroughly infected, it is evident the United States, as well as Europe, are now threatened from all sides. The gravity of the situation is seen in the fact that already last November two cases of the plague were found in New York harbor aboard a coffee-ship from Santos. Several cases have also developed on ships bound from the latter city for Mediterranean ports.

The United States is threatened not merely from the east Atlantic and south Atlantic, but also from the Pacific. As a matter of fact the danger to our Pacific ports is greater, owing to the direct communication with the Orient. It has been already indicated that Hong Kong has continued to be infected ever since 1894. On several occasions it disappeared during the winter months, only to reappear in spring. With the more or less constant prevalence of the plague at this great seaport, it necessarily will lead directly or indirectly to a dissemination of the disease along the entire Pacific. Already it has prevailed at Amoy, and has even extended to other Chinese ports as far as Niu Chwang. For several years it has already persisted on the island of Formosa. Japan was invaded last fall at Kobe and at Osaka, and although it disappeared during the winter, yet only a few weeks ago it has reappeared at the latter city. Sidney in Australia and Noumea in New Caledonia are also infected at the present time.

Manila, Honolulu and San Francisco have successively become infected. In all these places the disease, with but very few exceptions, has attacked the native or oriental population. The extinction of the plague in the Hawaiian Islands since the end of March is a splendid demonstration of what energetic, vigorous measures can accomplish. The presence of the plague since March 8 in Chinatown, in San Francisco, is readily recognized as a most serious condition, especially after the courts have granted an injunction restraining the health officers from carrying out the necessary vigorous preventive measures.

A few words should be given here to the overland dissemination of the disease. Europe is not merely threatened by infected ships which may come from China, India, Eastern Africa or South America. The overland routes from China and India are fully as grave a source of danger. Indeed, as will be presently shown, these are the routes along which the great epidemics of cholera and plague have always traveled in the past.

One of these great caravan routes leads from Lahore in Punjab through Afghanistan into the Russian province of Turkestan, where it meets the Trans-Caspian railway. This railway begins at Samarcand in Turkestan, and passes through Bokhara, Merv Askabad and ends at Uzun Ada on the Caspian Sea opposite Baku. Early in 1899 an outbreak of the plague occurred near Samarcand, undoubtedly brought up from India. The precautions taken to prevent the spread were entirely successful, and although no accounts have been officially published as to the means employed, nevertheless it will be seen that the radical procedure employed by LORIS MELIKOFF some twenty years ago was again resorted to. Inasmuch as the entire village was said to be afflicted it was surrounded by troops, and no one was allowed to enter or leave. The village and all that it contained was destroyed by fire ("Public Health Reports," September 15, 1899, page 1539). With this route open continually it is evident that fresh importation must be expected sooner or later.

Apparently a new plague focus, independent of that in Yunnan and Hong Kong has been recently discovered in Manchuria. The plague seems to have existed in this province for more than ten years under the name of Tarabagan plague, and is believed to be spread by a rodent, the Arctomis cobuc, which is subject to a hemorrhagic pneumonia. The presence of such an independent endemic focus in Manchuria indicates the possibility of the spread of the disease by caravan to Lake Baikal, and thence by the Siberian railroad to Russia. Indeed the epidemic of pneumonic type which began July, 1899, at Kolobovka, in Astrachan, while it may have been imported from Persia, might also owe its origin to the Mongolian focus.

Russia, however, is not the only country endangered by the overland transmission of the disease. There are commercial highways which lead from northwestern India through Baluchistan and Persia to the Caucasus, and through Turkey to Constantinople. Grave danger threatens from this source, and more especially from the cities along the Persian Gulf. Two important cities here are already infected, namely, Bushire in Persia and Bassorah on the Tigris in Turkey. It would appear as if Turkey and Persia would escape with difficulty from a visitation of this dread disease.

Such, then, is the geographical distribution of the present outbreak of the plague. This, an apparently extinct disease, has suddenly reappeared and given evidence of its power to spread death and desolation. Fortunately, however, modern sanitary precautions are quite able to restrict its progress, provided they be applied at the proper time and place. Filth and overcrowding, protracted wars and famine have been the powerful allies of the plague in the past. Through their aid this disease has made a deep impression upon the pages of history. It may not be out of place, therefore, to turn from the present outbreak of the disease and trace its gruesome past.

In ancient writings references are found which would seem to indicate the existence of the plague at a very early date. The Bible contains several such references (Deuteronomy, Chapter 28, paragraph 27. Samuel I, Chapter 5, paragraphs 6, 9). The latter especially deals with the plague which attacked the Philistines after they took the ark. The role of rats in the dissemination of the disease is, as some believe, apparently referred to in the trespass offering of "five golden emerods and five golden mice." The return of the ark together with this trespass offering brought also the plague "because they had looked into the ark of the LORD, even he smote of the people fifty thousand and three score and ten men. POUSSIN's painting of this Philistine plague, exhibited in the Louvre, shows several dead rats on the streets. It is evident that the susceptibility of the rat to the plague has been noticed even at this early date. The plague of boils visited upon the Egyptians as related in Exodus (Chapter 9, paragraphs 9 and 10) have also been taken to indicate the pest of today, but neither of these scriptural references can be said to be sufficiently definite.

The Attic plague which ravaged the Peloponesus 430 years before CHRIST has been accurately described by an eyewitness, the historian THUCYDIDES, and may be considered the earliest exact record of an epidemic. Like all the great epidemics of subsequent ages it was ushered in by the overcrowding, the misery and the famine consequent upon prolonged wars. The combustible material was there and all that was necessary was the spark to begin the work of death and devastation. It is noteworthy that the origin of the pest was traced by THUCYDIDES to Egypt or Ethiopia from whence it spread gradually overland to Asia Minor and thence by boat to Athens. The nature of this first great historic epidemic is and will remain uncertain. There are those who look upon this epidemic as one of bubonic plague but the fact that in the very careful description of the disease no mention is made of buboes and the statement that death occurred on the seventh to the ninth day would indicate that the disease was something else. Buboes are characteristic, it is true of the plague, but it should be remembered that outbreaks of the pneumonic form with little or no glandular enlargement are not uncommon. Death, however, in the case of plague is very common on the second or third day and is less liable to occur in more protracted cases. These facts lead to the commonly accepted belief that the Attic pest was not the bubonic plague. It may have been typhus fever, possibly smallpox.

The great pestilence which devastated Rome and its dependencies in 166, Anno Domini, is known as the plague of ANTONINUS or of GALEN. This prolonged epidemic was brought to Rome by the returning legions from Seleucia. It was not characterized by buboes and it is very probable that it was largely smallpox. On the other hand, the plague of SAINT CYPRIAN which prevailed from 251 to 266 Anno Domini, may have been partly bubonic in nature since it prevailed during the fall and winter months and ceased during the hot summer. The disease was said to be communicated by means of clothing and by the look. It spread from Ethiopia to Egypt and thence through the known world.

Although the above early epidemics cannot be identified with the bubonic plague, there is nevertheless excellent evidence of the existence of this disease in remote antiquity. The first undoubted testimony on this point is that furnished by RUFUS, of Ephesus, who lived in the first century of the Christian era. The writings of this author are no longer extant but they are quoted by ORIBASIUS, the physician and friend of JULIAN the Apostate, who lived in the fourth century. The writings of ORIBASIUS were discovered and published early in this century, in the Vatican Library, by CARDINAL MAI. In the forty-fourth "Book of Oribasius" occurs the extract taken from RUFUS of Ephesus from which it appears that "the so-called pestilential buboes are all fatal and have a very acute course especially when observed in Libya, Egypt and in Syria. DIONYSIUS mentions it. DIOSCORIDES and POSIDONIUS have described it at length in their treatise upon the plague which prevailed during their time in Libya." The description which then follows of the buboes and of the disease is an exact counterpart of the present plague. The writings of the authors quoted by RUFUS are no longer extant, but one thing is certain, and that is that the DIONYSIUS referred to lived not later than 300 years before CHRIST. The other two physicians lived in Alexandria contemporaneous with the birth of CHRIST. It may, therefore, be considered as an established fact that the plague existed in Egypt, Libya, and Syria, as early as 300 before CHRIST. This is of especial interest in view of the recent discovery by KOCH of an endemic plague focus in British Uganda and German Kisiba at the headwaters of the Nile. Whether it ever invaded European territory prior to the sixth century is unknown.

The great plague of JUSTINIAN which broke out in 542, Anno Domini, appeared first in Egypt and from thence it spread east and west throughout the known world and persisted for more than a half century. So unknown was the plague in Europe at that time that the physicians of Constantinople considered it to be a new disease. PROCOPIUS who was an eyewitness of the plague at Constantinople, states that the daily mortality in that city at times was over 10,000.

The pandemic of JUSTINIAN resulted in the distribution of the plague for the first time throughout the length and breadth of known Europe. From that time on the early chroniclers make repeated mention of devastating plagues consequent upon the miseries of war and famine. The descriptions of these pestilences are, as a rule, insufficient to identify them with the bubonic plague. Typhus, scurvy, smallpox and other diseases undoubtedly alternated in the work of destruction. Of the scores of epidemics thus recorded during the eight centuries following this first visitation few, indeed, can be identified to a certainty with the bubonic plague, and yet there can be no doubt but that this disease occupied no second rank during the dreary darkness of the middle ages. This era in history may be said to have been ushered in by the JUSTINIAN plague, and it was closed by an even more disastrous outbreak of this same disease. All the ravages and slaughter consequent upon the great historic battles when taken together pale into insignificance on comparison with that dread visitation of the fourteenth century, the "black death."

It is noteworthy that this great historic epidemic did not originate in Egypt, as many of its predecessors. Without exception the contemporaneous writers ascribe its origin to Cathay, or the China of today. This fact is of interest when it is borne in mind that at the present time we know of the existence of two endemic foci in China, besides that of Gurhwal in India, of Beni Cheir in Arabia, and of Uganda and Kisiba in Africa. Whatever may have been its source the fact is that it advanced from the Orient along the three principal routes of travel. One of these led from the Persian gulf through Bassorah and Bagdad along the Euphrates, across Arabia to Egypt and northern Africa. Another route passed from India through Afghanistan, and skirting the southern borders of the Caspian and Black seas, eventually reached Asia Minor. A third route from Turkestan and China led around the northern shore of the Caspian sea to Crimea, and thence to Constantinople. It was along these several routes that the plague advanced and spread over most of western Asia and northern Africa.

The European black death, however, can be traced with accuracy to the Crimean peninsula. Gaffa, a town in Crimea, now known as Theodosia, had been founded and fortified by the Genoese. It as well as other cities along the Black sea, were largely populated by Italians. One of these, GABRIEL DE MUSSIS, a lawyer in Gaffa, has left a faithful account of his experience and share in the introduction of the plague into Europe. In 1346 in the Orient numberless Tartars and Saracens were attacked with an unknown disease and sudden death. In the city of Tanais, through some excess, a racial struggle ensued between the Tartars and the Italian merchants. The latter eventually escaped and took refuge in Gaffa, which in time was besieged by the Tartars. During the siege which lasted three years the Tartar hordes were attacked by the plague which daily carried off many thousands. The besiegers despairing of reducing the city by direct attack, attempted to do so in another way. By means of their engines of war they projected the dead bodies into the beleaguered city, which as a result soon became infected. The Christian defenders took to their ships, and abandoning Gaffa sailed westward, touching at Constantinople, Greece, Italy and France.

Wherever the infected vessels touched they left the plague. Constantinople thus became infected early in 1347. During the summer Greece, Sardinia, Corsica, and parts of the Italian coast developed the disease. In the fall it reached Marseilles. The following year it spread inland into Italy, France, Spain, and even into England. In another year or two it spread over Germany, Russia, and crossed to the Scandinavian peninsula. Within four years it had completed the circuit of Europe, spreading untold death and misery. No greater catastrophe has been recorded in the history of the world.

The rapidity with which the disease spread among the fugitives from Gaffa, and in the cities visited by their ships, is despairingly narrated by DE MUSSIS who, returning in one of the ships to Genoa, says: "After landing we entered our homes. Inasmuch as a grave disease had befallen us, and of the thousands that journeyed with us scarcely ten remained, the relatives, friends and neighbors hastened to greet us. Woe to us who brought with us the darts of death, who scattered the deadly poison through the breath of our words." According to this writer 40,000 died in Genoa, leaving scarcely a seventh of the original population. Venice was said to have lost 100,000, Naples 60,000, Sienna 70,000, Florence 100,000. All told, Italy lost half of its population.

Of the contemporaneous writers none has painted the horrors of the plague more vividly than does BOCCACCIO in his introduction to the *Decameron.**

From Marseilles the plague spread through Provence with disastrous results. In some monasteries not even a single survivor was left. In one of these PETRARCH's brother buried thirty-four of his companions. At Avignon, the seat of the pope, 1,800 deaths occurred in three days. In Paris more than fifty thousand died of the plague.

In England the black death appeared in August, 1348, and continued till the autumn of 1349, when it disappeared. London, which at that time probably had a population of 45,000, had a mortality of about 20,000. No exact statement can be made of the relative mortality in England, although many undoubtedly extravagant guesses are recorded by contemporaneous writers.

It is estimated that the population of Europe previous to the outbreak of the black death was about one hundred and five millions. One quarter of the population, or about twenty-five millions, are

*"What magnificent dwellings, what noble palaces were then depopulated to the last person! What families extinct! What riches and vast possessions left, and no known heir to inherit! What numbers of both sexes in the prime and vigor of youth, whom in the morning either GALEN, HIPPOCRATES, or AESCULAPIUS himself but would have declared in perfect health, after dining with their friends here have supped with their departed friends in the other world!"

said to have died of the plague. This may be but a mere estimate, it may be grossly inaccurate, but it nevertheless indicates the deadly character of the pestilence. According to a report made to POPE CLEMENT VI, the total mortality for the known world was placed at forty-three millions. One-half the population of Italy succumbed. The order of Minorites in Italy lost 300,000 members. The order of Capuchins in Germany lost 126,000 members, while the total of deaths in Germany was placed at 1,200,000.

The invasion of Europe by the black death was sudden and rapid. The seeds of the disease, once planted on European soil, persisted, as might be expected, for no little time. Although the great epidemic was said to have lasted till 1360, it must not be inferred that it then ceased altogether. Diverse localities retained the infection, and, as a result, new outbreaks, though to a less extent, continued to outcrop during the following years. From that time on every decade or two witnessed more or less pronounced outbreaks of the disease in France, England and in Italy. The chroniclers of those local outbreaks during the latter half of the fourteenth and during the entire fifteenth century do not always make it clear that the pestilence described was the real plague. It was but natural to include typhus and other diseases under the dreaded term of pest. Nevertheless, the frequency of these outbreaks indicates the persistence and the wide dissemination of the plague during those years.

During the sixteenth century the plague apparently began to show a decrease in its frequency, although, during this period, as before, other epidemic diseases were mistaken for it. Germany, Holland, certain cities in France and especially in Italy were scourged by the plague during this century. The noteworthy outbreak in Italy in 1575–77 was due to fresh importation from the Orient. The disease spread throughout Italy, and the devastation it caused was not inferior to that of the great plague two centuries before. For example, in 1576 in Venice 70,000 died of the disease.

During the seventeenth century the plague asserted itself with great severity. Following a famine, it prevailed in Russia in 1601–1603, and some idea of its destructiveness may be gained when it is stated that in Moscow alone 127,000 lives were taken. During the following decade even greater epidemics prevailed in Western Europe. France and England were invaded, and in Switzerland it even penetrated to the highest Alps. Basel in 1609–1611 had 4,000 deaths, while London in 1603 yielded 33,000.

The terrible epidemic which ravaged Northern Italy in 1629–1631 deserves more than a passing notice. During those years more than a million died of the disease. Scarcely a town in Northern Italy escaped. The city which, perhaps, suffered the most was Milan, where, in 1630, the total deaths from all diseases is said to have amounted to 186,000. The Milan outbreak has been graphically described by MANZONI in his celebrated "I Promessi Sposi." Unrecognized, the disease entered Milan in October, 1629. The mild cases which were met with during the winter months lulled the fears of the people and encouraged the mass of physicians to deny the existence of the plague. But in April the disease began to assert itself in terrible earnest. The frenzied populace, blind to the contagiousness of the disease, were possessed with the strange hallucination that obtained during former plague epidemics in other Italian cities that the pest spread because of poison scattered about by evil-minded persons. Suspicious strangers were, as a result, stoned in the streets, imprisoned and even put to death by legal process because of such fanatical beliefs. To offset the growing pestilence, the people demanded of the archbishop that a solemn religious procession be held and that the holy relics of SAINT CHARLES be exposed. At first this was refused, but eventually it was granted. The procession bearing the saintly body was solemnly held on the 11th of June. The fanatical security which these devotions engendered were rudely shattered when, a few days later, the disease burst forth with renewed activity among all classes in all parts of the city. Nevertheless, as MANZONI observes, the faith was such that none recognized that the procession itself was directly the cause of the new outburst of the disease by facilitating the spread of the contagion. Again the belief asserted itself that the "untori" or poisoners mixed with the crowd and with their unguents and powders had infected as many as possible. From that day the fury of the contagion continued to grow to such an extent that scarcely a house remained exempt from the disease. The number of patients in the pesthouse rose from 2,000 to 12,000, and later reached 17,000. The daily mortality rose from 500 to 1,200, then 1,500, and is even said to have reached 3,500. Milan, before the epidemic, was said to have had a population of from 200,000 to 250,000. The loss by death has been variously estimated at from 140,000 to 186,000. All of these deaths were not due to the plague. Thus, large numbers of children died as a result of starvation consequent upon the death of their parents from the plague.

The horrors attendant upon such a dreadful visitation can well be imagined. Scarcity of help in removing the dead and in taking care of the sick made itself felt, to say nothing of the lack of food. Enormous trenches, one after another, were filled with the bodies of the victims, carried thither by the hardened "*monatti*," the counterpart of the Florentine *becchini*, so well portrayed by LORD LYTTON in his "Rienzi." These bearers of the sick and dead were naturally recruited from the lowest criminal classes, and it can, therefore, cause but little wonder that an epidemic of the worst of crimes was associated with that of the plague.

In 1656 Italy was again invaded by the plague, and on that occasion Genoa lost 65,000 of its population by death. About the same time terrible epidemics of the disease ravaged Russia, Turkey and Hungary.

London, in 1665, suffered dreadfully from the plague. The disease appears to have been imported from Holland, where it was known to have existed for some time. The progress of the disease in London has been vividly portrayed by DEFOE in the "Journal of the Plague Year" and in the "Due Preparations for the Plague."

It is supposed that the pest had been imported in bales of goods from Smyrna into Holland in 1663. From thence it crossed over to London, where the first deaths were reported about the first of December in 1664. Toward the end of that month another death occurred in the same house, but during the following six weeks no new case developed. About the middle of February, however, a person died of the plague in another house. From that time only occasional cases of plague were reported, although the weekly mortality was rapidly rising and was greatly in excess of the usual rate. Thus, while the ordinary weekly mortality ranged from two hundred and forty to three hundred, this was gradually increased so that in the third week in January it had risen to four hundred and seventy-four. After a slight remission, the mortality again rose, so that early in May plague cases were reported more frequently. It soon became evident that the plague, as in Milan in 1630, had slowly but surely gained a firm foothold. The increased mortality was undoubtedly due to unsuspected plague cases either of the pneumonic or septicemic type.

During May, and especially during the hot weather in June, the disease continued to spread. At the same time the panic-stricken people began to leave the city in large numbers. In July the condition was truly deplorable. To quote **Defoe**:—

> "London might well be said to be all in tears; the mourners did not go about the streets, indeed, for nobody put on black or made a formal dress of mourning for their nearest friends; but the voice of mourning was truly heard in the streets. The shrieks of women and children at the windows and doors of their houses, where their dearest relations were perhaps dying, or just dead, were so frequent to be heard as we passed in the streets, that it was enough to pierce the stoutest heart in the world to hear them. Tears and lamentations were seen almost in every house, especially in the first part of the visitation; for toward the latter end men's hearts were hardened, and death was so always before their eyes, that they did not so much concern themselves for the loss of their friends, expecting that themselves should be summoned the next hour."

London at this time had a population of nearly half a million. The total of deaths from the plague during 1665, as reported in the bills of mortality, is 68.596. By far the larger number of these occurred in August, September, and October. The weekly mortality from the disease rose from a few cases in May to over 7,000 per week in September. It may, indeed, be close to the truth when **Defoe** states that 3,000 were said to have been buried in one night.

The great plague of London in 1665 was by no means the only visitation of that kind. From the time of the black death in 1348, London had a continuous record of plague infection. On an average it had an epidemic of plague every fifteen years. Some of these were fully as severe as that of 1665. Thus, in 1603, with a population of 250,000 there were over 33,000 reported deaths from the plague. In 1625, 41,000 died of pest out of a population of 320,000.

One of the most remarkable facts in connection with the great plague is this—that it was the last in England. The great fire of 1666 is supposed to have extinguished the plague but this cannot be said to be true. The disease continued to a slight extent in 1666 and isolated cases were reported as late as 1679, but after that date it disappeared completely and since then England has been absolutely free from the plague. The sudden extinction of the plague in England after it had become domesticated, so to speak, for nearly three centuries, is indeed difficult to explain. **Creighton** sees an inhibiting influence in the growth of the practice of burial in coffins. But the absence of famine together with the cessation of domestic wars and strife and the abeyance of want and misery had not a little effect. As will presently be seen the extinction of the plague in England was no more remarkable than its disappearance from Western Europe.

The history of plague in the seventeenth century does not close with the London epidemic. From 1675–1684 the disease ravaged Northern Africa, Turkey, and from thence invaded Austria and even reached Southern Germany. The Vienna outbreak of 1679 can be said to have been no less terrible than that of Milan or of London. The deaths from plague in Vienna in that year have been variously estimated at from 70,000 to double that number.

From Vienna the plague reached Prague, where in 1681, it is said to have caused no less than 83,000 deaths. It is not to be wondered at that a nation scourged by thirty years of relentless warfare, by religious persecution and finally tried thus severely by the plague should inscribe upon the equestrian statue of their patron saint the heart-rending appeal, "LORD, grant that we do not perish."

The close of the seventeenth century saw the disappearance of the plague from Western Europe. In Eastern Europe, however, the disease continued to exist even during the eighteenth century. Nevertheless, a change had taken place for the better, and as the years went on the retrogression of the plague became more and more distinct.

During the first two decades of the eighteenth century the plague was widely distributed in East Europe. It was present especially in Constantinople and in the Danubian provinces. From the latter it extended to Russia (Ukraine) and from thence to Poland. The disastrous invasion of Russia by CHARLES XII, of Sweden, ending in his defeat at Poltawa in 1709, led to its further dissemination to Silesia, Eastern Prussia, the Baltic provinces and seaports, and even to Scandinavia. It was during this epidemic that Dantzic, in 1709, lost 33,000 and Stockholm 40,000 by the plague. During the years 1709 and 1710 the plague mortality in the Baltic provinces exceeded 300,000. Three years later, in 1713, the plague spread up the Danube and reached Vienna, Prague, and even Bavaria.

During these two decades Western Europe was entirely free from the dread disease. In 1720 the disease suddenly developed in Marseilles and extended from thence to neighboring towns and the country districts of Provence. Terrible as was this visitation it is of interest inasmuch as it was the last occurrence of the plague on French soil, and the last in Western Europe until the recent outbreak in Portugal.

The plague was said to have been imported into Marseilles by a merchant vessel, the Grand Saint Antoine, from Syria. On its way to Marseilles several deaths occurred on shipboard, but the cause was overlooked. On the 25th of May, 1720, two days after the arrival of the vessel, another death occurred among the crew. The disease was still not believed to be the plague, and although quarantine was instituted new cases appeared among the crew, the dock laborers employed in unloading the vessel, and it was not until the disease reached the city that its true nature was recognized. The germs of the disease had then been scattered broadcast. Unsanitary a city as Marseilles is today, it must have been vastly more so in 1720. The result of the addition of plague germs to the want, misery and filthy condition was at once evident. During August the mortality averaged four and even five hundred per day. In September the daily mortality rose to 1,000. So great was the terror of the populace that it became impossible to secure bearers of the dead, to obtain nurses and attendants. The dead were left in heaps upon the streets so that it became necessary to transfer to the city 700 galley slaves who were required to remove these bodies from the streets. These same galley slaves were even impressed into service as nurses. The diseased were abandoned by friends and relatives, and under such conditions it need not be wondered at that they received little or no attention from others. Food and even water was denied to the unfortunates and when food was administered into the pesthouses it was thrown into the windows by machinery.

The disease continued in Marseilles until December, 1721, but isolated cases persisted until April, 1722. During the fifteen months of its duration it carried off 40,000 of the population. According to DEFOE, there died of the plague in Marseilles and within a league of its walls 60,000.

From Marseilles the plague reached Aix, and in the winter of 1720 and 1721 it carried off 18,000 of its people. It also reached Arles, where, in 1721, out of a population of 23,000, 10,000 died (forty-five per cent). The same year, in Toulon, which had a population of 26,000, the plague attacked 20,000 of the population, and of these 13,000, or about one-half of the original population, died.

The country districts about Marseilles were likewise invaded. Out of a population of 248,000, there died of the plague 88,000, or fully thirty-five per cent.

It is evident from this description that the plague of 1720 was in no wise inferior to that of 1348. Fortunately, the disease did not spread beyond Provence. It is noteworthy that in many instances, in Marseilles, people secluded themselves in their houses, avoiding all communication with the outer world, and in this way escaped. Similar isolation of cloisters, insane asylums, likewise resulted in freedom from the disease which stalked so freely throughout the stricken city. It is experience of this kind in isolation of the healthy, which led DEFOE to write his "Due Preparations for the Plague."

Toward the middle of the century the plague reasserted itself in the Danubian provinces, the constant battleground between the Turks and Russians and Austrians. In 1738 it not only prevailed in Russia but also invaded Hungary. Of more importance than this occurrence is the outbreak of the plague in 1743 in Sicily. The last epidemic of plague had occurred in Messina in 1624. After a lapse of one hundred and twenty years, it reappeared with terrible results. In Messina, as in Marseilles and in London, the first cases were not recognized as plague cases and, as a result, the infection spread until, like a veritable explosion, the disease developed all over the city. The plague, with its attendant misery of lack of food and even of water, was in vain combated by religious processions. The plague corpses were in heaps in the streets, as in Marseilles, and cremation was resorted to in order to effect their removal. That year 30,000 died of plague in the city of Messina. With the exception of a slight epidemic at Noja in 1815, this outbreak in Messina in 1743 was the last one to appear in Italy.

In 1755, the plague was introduced into Transylvania by an Armenian merchant from the Black sea. Before it was extinguished, 4,300 deaths were recorded.

Next to that of Marseilles and of Messina, the most noteworthy outbreak of plague was that which occurred in 1771 in Moscow. The disease was introduced by troops returning from the Danubian provinces. As so often has been the history of plague, the first cases were not recognized, and the existence of pest was denied. When the plague was demonstrated to be present, it is said by **Haeser** that three-fourths of the populace deserted the city. The disease began early in March and increased during the early summer months. In August over 7,000 deaths resulted, while in September the records show that 21,000 died. In October the plague decreased, but still 17,000 deaths attested to its fearful power. Early in January it became extinct, after a duration of ten months, and after having caused the death of more than 52,000 people.

Toward the close of the eighteenth century, at the time of the Napoleonic invasion of Egypt and Syria the French armies came into contact with the plague. **Bonaparte's** visit to the pest-stricken soldiers at Jaffa has been perpetuated in the historic canvas which is to be seen at Versailles.

During the nineteenth century the plague ravaged Northern Africa on diverse occasions. Constantinople was invaded in 1802, 1803, 1808. It was also present to a slight extent in the Caucasus and in Astrachan. A notable plague epidemic appeared in Egypt in 1812 and soon spread through Turkey and Southern Russia. Constantinople and Odessa were severely scourged. In Odessa out of a population of 28,000 there died 12,000.

It is a noteworthy fact that the Napoleonic wars with all their incident hardships and misery did not develop or spread the plague in Europe. The outbreaks of the disease were limited during this period to Africa and to Turkey, Bosnia, Roumania, Dalmatia, and to Southern Russia. Two exceptions, however, are to be noted. In 1812 the Island of Malta was infected and more than 6,000 of its people yielded to the disease. The epidemic of 1815 at Noja in Apulia was the first recurrence of the plague on Italian soil since 1743, and thus far it has been the last.

The Balkan Peninsula and Southern Russia were visited from time to time by the plague up to about 1841. For nearly forty years Europe was wholly free from the disease, which, however, continued its existence in Northern Africa, in Mesopotamia and in India. The Russo-Turkish war of 1878 brought the Russian troops into contact with the disease in the Caucasus and the epidemic at Vetlianka on the lower Volga was unquestionably introduced by such returning soldiers.

Such, then, has been the history of the bubonic plague. No other epidemic disease can be traced authentically as far back as the "Black Death." The characteristic symptoms, the rapid death, the excessive mortality are all features which have been noted through more than twenty centuries. The plague bacillus discovered in 1894 by **Yersin**, judged by its effect, is neither more nor less virulent than its early progenitors. It has often died out in a given locality or country, it has even been forced back to its original ancestral home, but still the same type, the same species has perpetuated itself unchanged. If the plague on its present worldwide journey does not cause such terrible outbreaks as it has in the past it will be, not because the germ has been altered by time, but because man has changed in so far as he has slowly learned and profited by the lessons of previous epidemics.

MEMOIRS.

SOME FURTHER OBSERVATIONS ON THE TREATMENT OF EPILEPSY.*

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In 1893 I read a paper before the Michigan State Medical Society in which I discussed the treatment of epilepsy and dwelt particularly upon the routine use of the bromides and the desirability of finding, if possible, some line of treatment which would be at least as effectual but which would be free from the damaging effects, not unfrequently produced, by the bromides themselves.

In the seven years, that have since elapsed, there has been abundant opportunity to estimate the truth or the fallacy of the views then maintained. A study of the text-books since published and a general review of the current medical literature, leads to the belief that the protest then uttered, against the habitual, persistent and indiscriminate use of the bromides, is still justified. Most of the text-books of today, as then, have little to say of any other drugs, in the treatment of epilepsy, but the bromide. It is taken for granted that a drug which will lessen the frequency of the fits has thereby demonstrated its utility, and yet, every physician, who is brought in contact with large numbers of epileptics, is thoroughly familiar with the fact that the bromides, given for long periods of time, not unfrequently cause quite as serious damage to the nervous elements as the disease itself would do were it left entirely unchecked.

A prominent lawyer, who once consulted me for epilepsy, introduced himself with the statement: "Doctor, I can control the fits by the bromides, but," he said, "I prefer to have a fit once in three months to being a fool all the time." This clever lawyer seemed to have a keener observation than some medical men do, who doggedly keep their patients on the bromide, oblivious of the steady mental deterioration produced by the drug, content only if the patient does not have fits.

In the article published in 1893 I advocated the use of the coal-tar antipyretics, not as necessarily doing away with the use of the bromides, but as furnishing a method of treatment which was capable of producing, in many cases, quite as favorable results as the bromide and of being free from the well known effects of the bromides, in bringing about mental deterioration.

Subsequent experience has in no sense changed my conclusions in regard to the efficacy of the coal-tar products in the treatment of epilepsy. To the cases mentioned in the article I could add many more on the same strain, and I may say that of all the patients mentioned in the article as cured by the coal-tar products, all have remained cured to the present date except one. This patient had been free from fits for a long period of time, and we were congratulating ourselves upon the result, when he suddenly developed the status epilepticus, and, after a few hours of continuous convulsions, died. This, of course, is a by-no-means uncommon result in epilepsy,

*Read before the Wayne County (Detroit) Medical Society.

and it must be confessed that this man reached the same unfortunate termination as many other epileptics, but at least it can be said that, under the use of the coal-tar products, he had remained for a long time entirely free from convulsions and he was mentally clear and acute, and attended to his business up to the last. In the article I was particular to call attention to the necessity, during the first eight or ten days of the administration of the coal-tar products, of keeping close watch on the action of the drug upon the heart. It has happened to me repeatedly to be obliged to promptly discontinue the drug, because there was manifest depression of the circulation, but, it seems, as far as I have noticed, a uniform rule that if the drug is to cause any such depression it occurs during the first few days of its administration. In no case have I found that the later and prolonged use of the drug has brought about any serious circulatory disturbance, and all of my experience has made me feel more than ever certain that the drug is entirely devoid of that stupefying quality which frequently is produced by bromides.

At the outset I used phenacetin, acetanilid, or antipyrin; in the years that subsequently elapsed I have settled down to the use of acetanilid. Further observation has brought about some very positive therapeutic conclusions. In my early experiences I found that sometimes the coal-tar products were entirely without effect, while in other cases the effect was prompt and thoroughly satisfactory. As I increased my observations it became clear that I got the fine results from the coal-tar products precisely in those cases in which the bromides had already been used freely and continuously, and in which the bromides had failed to control the fits. Since then I have become convinced that this result is based upon a therapeutic law of wider application.

While I was carrying out these observations the Flechsig method of treating epilepsy was published. This method, now so generally known, consists in putting the epileptic patient upon gradually increasing doses of opium, so that the opium is finally given in such a way as to keep the patient pretty thoroughly narcotised day after day for a considerable period. To be effective the drug must be very thoroughly pushed. When now the patient has been held under the influence of opium—and thoroughly under the influence of it—for a considerable period, the opium is withdrawn and the patient is now put upon treatment by the bromides. It is then found that the bromides will exert a controlling influence over the disease very much greater than they would have exerted had the patient not first been saturated with the opium. In some instances, the Flechsig method has brought about thoroughly satisfactory results.

Now, recurring to my accidental experience, I think it becomes clear that the same principle applies here as there. A patient who has been thoroughly saturated with bromides, and who is then deprived of his bromides and put upon the acetanilid, will respond to the acetanilid treatment, in very many instances, in a remarkable manner. I have therefore come to this conclusion, that in any case of epilepsy seen at an early period, it would seem best to put the patient first of all upon the bromide treatment. It is important in beginning the bromide treatment to push the drug far enough to really control the fits. At the outset this may require giving the drug in very free doses. Practically, I have found it very advantageous in thus beginning the treatment, to combine with the bromides a moderate dose of chloral. I think that with the addition of the chloral it is not necessary to give such large doses of bromide to control the fits. Now, when the fits seem to be under control, it certainly seems wise to gradually diminish the dose of bromide to the smallest dose which will serve to keep down the convulsions. In some instances the bromides alone can fairly be said to effect a cure, but the physician who keeps in mind the fact that the bromides are liable to produce toxic effects, and that these effects consist in changes in the nervous elements in the nature of degeneration, who therefore keeps the drug down to the lowest point consistent with controlling the nervous instability, will secure the best results both in the way of controlling the epilepsy and maintaining the patient's mental integrity.

If, now, in spite of the careful and persistent use of bromides, the fits continue, or if, as not infrequently happens, the time seems to come when the bromides have lost all control of the disease and the fits recur with increasing frequency, then the change from the bromides to the acetanilid is one which can be made with a reasonable hope of benefit. Certainly, in such a condition nothing is to be gained by an obstinate perseverance in the use of the bromides, and it is precisely in these cases in which the patient has been thoroughly saturated with the bromides that the acetanilid produces its best results.

Now, as to the method of using acetanilid. It is by no means necessary to give an overwhelming dose. In an adult, five grains three times a day is an ample dose; not infrequently three grains three times a day will prove sufficient, and, as time goes on and the patient remains free from the fits, I have been in the habit of gradually decreasing the dose while maintaining its regular administration. The drug certainly does not act in the same way as the bromide, and I am free to say that the use of it is justified on purely empirical grounds. This much seems to be certain: that of no class of drugs are we more certain of positive action than we are of the coal-tar products. Whatever contentions may rage about the advisability or the unwisdom of reducing fever in various diseases, no one can dispute that when a patient has a high temperature it is purely a question of the size of the dose, but by means of the coal-tar products we can, with certainty amounting almost to infallibility, reduce that temperature, and the action in reducing that temperature, it is evident, is by the action of the drug upon the heat regulating nervous centers. With this fact before us, knowing beyond peradventure that we have, in the coal-tar products, drugs which act upon the nerve centers in a most powerful manner and with great certainty, it is not unreasonable to expect a positive effect from these drugs in such an obstinate neurosis as epilepsy. Whether the drug shall exert a beneficial effect upon the nerve centers involved is a question to be settled empirically.

Returning to the effect of these drugs in reducing fever,—whatever other objections may be made to their physiological effects no one has ever claimed that there had been any stupefying effects or any effects indicating degeneration of the nervous protoplasm. The harm done by the drugs, if any, seems to be limited either to the circulatory nerve centers or to the constitution of the blood itself.

In a study of the treatment of epilepsy it seems worth while to bring to your attention some matters not related to my former paper. One of these points, in regard to treatment, refers to the search for reflex causes of epilepsy. I was consulted about a young girl fourteen years of age, of excellent heredity and fine body development, who, without any history of previous neurosis, suddenly developed epilepsy of very great severity. The most careful search was made for any reflex causes. At that age the oncoming of the menstrual function with its natural excitation of the generative apparatus very naturally occupied the foreground. Yet, I became convinced that the pelvic organs were blameless. The case progressed, in spite of all medication, steadily, from bad to worse. I had, at the first, looked at the girl's mouth, and found two rows of large, fine, sound teeth. Unfortunately, I did not stop to count them. After the epilepsy had been progressing for several months I accidentally discovered that the two upper canine teeth had never come down; the incisors were unusually large so that they filled the arch of the jaw evenly and well. Now, I found that the two canines had began to develop thus late in life, and, finding the jaw completely filled, were protruding out beneath the alæ of the nose. I blamed myself for not having discovered this condition before, and yet, one does not look for canine teeth to be forming at the age of fourteen. Naturally, the offending misplaced teeth were removed but, unfortunately, the epileptic habit was so thoroughly established that the fits continued unchanged until, some nine months after the first fit, the patient died. While, of course, it is impossible to say positively that these teeth were the cause of the epilepsy, yet the conviction in my mind is very strong that it was so, and I report the case to emphasize the necessity not only for examining the teeth but for counting them. Had I counted the teeth, discovered the lost canines and had them removed before the epileptic habit had been well established, I think there is good reason to believe that the patient might have been cured. Naturally, since that time I have been examining the teeth pretty carefully, and a more recent case is instructive, although too little time has yet elapsed to enable me to give a positive statement.

This case is that of a young man of sixteen, who is a type of a perfectly formed youth. In build, habits, heredity, the boy is perfect. He developed epilepsy, and has had four attacks of grand mal only, and has had many attacks of petit mal of mild type. On examining the teeth I found that the last molar on the right side had completely broken through the mucous membrane, but was not yet grown up to a level with the other teeth. The last molar on the left side, it turned out, had grown up to the full height of the other teeth, pushing the tense, tough mucous membrane before it, and still covered with this tense skin. I advised the attending physician to lose no time in radically clearing the membrane from the crown of the tooth. The result to the present time has been satisfactory. No attack of grand mal has recurred and the attacks of petit mal have grown very infrequent. I very greatly hope that by thus acting on what may very reasonably be the reflex cause of the convulsions and by getting at it early as we have done, the epilepsy may be stopped at once. Such cases as these emphasize afresh the necessity of searching for all possible reflex causes.

Certain recent experiences lead me to feel that it is worth while also to call attention to the question of intestinal worms as a cause of epilepsy. I was once called to see a child about four years old who had learned to walk and talk at the usual age and seemed a well enough child. This child began to develop epilepsy, which rapidly increased in severity until the fits recurred daily and with great frequency. By the time I was called to see the child the mental condition had reverted to that of almost complete imbecility. Led, I imagine, more by the household surroundings than anything else, I became convinced that the child had intestinal worms. I gave it a vermifuge, which produced no result. I doubled the dose, again with no result. Fortunately, I was possessed so firmly with the idea of parasites that I kept on increasing the dose until I gave a dose which I would have been entirely afraid to have given at the outset, and under this persistent use of increasing doses there finally came away a mass of round worms simply astonishing in number. From this time on the course of the case was uneventful. In a short period the fits entirely ceased, the child's intelligence brightened up, and the child has since grown to a well, intelligent young woman.

I would not feel called upon to allude to this experience, which can be duplicated by a great many men in active practice, I have no doubt, were it not that I find that there exists in the minds of not a few medical men a curious scepticism in regard to the part that intestinal parasites play in the causing not only of epilepsy but of various other neuroses in children. This attitude of medical men is difficult to comprehend but seems probably to be the result of that state of mind which resents the assumptions of the laity in medical cases. So many old women promulgate so many foolish ideas and do it with such an unpleasant assumption of superior knowledge that it seems probable that not a few physicians, resenting their assumption of knowledge, go to the other extreme and refuse to acknowledge that the old women have, after all, some basis of truth at the bottom of their exaggerated assumptions. No medical man doubts that children do have, and frequently have, worms. No medical man doubts that the various neuroses can, in many instances, be traced to some reflex cause; and it seems perfectly illogical for medical men to take the attitude of a contemptuous disregard of the possible relation of these two things. Not only epilepsy, but chorea and night terrors and enuresis, and that unfortunate condition which we designate simply as "nervousness" but which is, nevertheless, a terrible drawback both to a child's physical development and mental growth, all of these conditions can frequently be traced to the irritation of intestinal worms. I think that sometimes, physicians, even those who have no special doubts as to the relationship here mentioned, not infrequently fail to use vermifuge measures with sufficient vigor to guarantee the expulsion of the worms.

While it is undoubtedly true that the successful treatment of epilepsy renders it imperative, in each case, to make the most careful search for possible causes of reflex irritation, there is a growing appreciation of another factor in the causation of the condition. I refer to autointoxication. The more closely we consider the phenomena of epilepsy both at the time of the explosive discharge and in the interval between the fits, the more we are impressed with the fact that there is some cause acting persistently to gradually increase the instability of the cortical cells. We can easily demonstrate that there are certain alkaloids whose toxic effect is to bring about just such an instability. Strychnine and quinine are the first examples. There is excellent reason to believe that there are formed in the body, as the results of tissue changes and changes in the foods, alkaloids which are similar in their effects and this has led, in recent years, to a very clear recognition of the necessity of paying strict attention, in epileptics, to the free elimination of all waste products. There have been some observers, influenced largely by the work of **Bouchard**, who have been inclined to believe that such autointoxication is the real underlying condition in all cases of epilepsy. This, it seems to me, is an extreme view, and not to be accepted. The fact probably is that there are certain individuals whose nervous instability is, by nature, so great that slight causes are ample to set up the explosive discharge of epilepsy. Such are the patients who have inherited a neurotic constitution from parents who have manifested one or other form of neurosis, or who have been addicted to alcohol or opium. To this class also belong those patients who, being born of healthy parents, have suffered during early infancy from profound malnutrition due to digestive disturbances or severe illness in early life. Many a child who barely lives through the first eighteen months of its life, carries with it throughout adult years a damaged nervous system, notwithstanding apparent good physicial development. But aside from these hereditary or damaged neurotics, I believe that it is true that no small number of epileptics would have remained free from the disease were it not for a gradual process of autointoxication occurring at some period of adult life. In other words, the alkaloids of putrefaction may be conceived of as bringing about the same state of unstable equilibrium in the cortical cells as that which characterizes the hereditary neurotic. In any event the plan of scrupulously guarding against possible accumulation of excrementitious poisons is one that ought to be kept in mind in care of every epileptic. It is not solely a question of giving such drugs as will keep the liver, intestines, kidneys and skin actively at work, but ought to involve careful study of the patient's physical exercise.

When we stop to consider the usual history of epilepsy we may, I think, portray it somewhat after this fashion: The unfortunate epileptic after his first fit will go for a long period without a recurrence. If the attacks occur at night only he may go along for a considerable time with the fits occurring only at long intervals. If, however, one or two fits occur when the patient is at school or at his business, almost to a certainty he is compelled to change his entire mode of life. The man is dismissed from his work, no one wants to hire him, and, practically, he is apt to be reduced to a state of idleness. Just as soon as this occurs it is almost certain that the intervals between the fits will now grow much shorter. The patient usually has an excellent appetite, eats abundantly, and performs relatively little bodily labor. If, now, he has been endowed by nature with large muscles, it is not to be wondered at that he proceeds to manufacture a large amount of waste material and that, leading a comparatively indolent life, he is almost certain to fail to keep up the necessary elimination. These are the patients who usually have fits of great severity occurring with constantly increasing frequency. In such a case as this, to merely stimulate the liver and kidneys and bowels is not enough. It seems to be of great importance that the patient shall be set at bodily labor of a vigorous sort and sufficient in amount to bring about the complete oxidation of his food products, and to stimulate, in nature's own way, all of the excretions.

One of the most brilliant results which I have secured in the treatment of epilepsy occurred in the person of a young man who owned a half interest in a large and prosperous lumber business. He had been drugged to saturation; his mental deterioration was profound, and his condition was regarded by his friends as hopeless. They were prepared to send him to some sanitarium. I persuaded him to return to his home and promise me that he would go down to his lumber yard every morning dressed in overalls, and earn $1.50 a day piling lumber on his own dock, loading and unloading it on his own boats. He was to do the work, not superintend it. He carried out the advice to the letter and used his great muscles, day after day, in vigorous bodily labor. He so completely recovered that not only did he cease to have any more fits, but when he had remained free from them for three years it became necessary for him, during the time of the panic, to assume entire charge of his extensive business, no light matter in good times, and a big strain upon the nervous system in hard times, and for eight months he alone carried on the entire business and carried it with entire success. No better test of recovery could probably be made, and both the patient and myself feel that his experience on the lumber pile was probably the principal cause of his recovery.

In everyday practice, especially in cities, it becomes exceedingly difficult to arrange matters so that our epileptic patients can find the opportunity for hard physical labor, and it is hard physical labor that they require, not a perfunctory artificial exercise. It is particularly for this reason that I welcome the movement which is now extending through various states for the establishment of colonies for epileptics. On all physiological grounds it would seem that the colony will furnish a means of recovery to many epileptics whose prospects otherwise would be hopeless. It does not seem a question of skillful medical attendance only, but the epileptic on the colony farm can find the opportunity for labor which is of the greatest possible value to him.

In this connection it is well to dwell for a moment on the question of diet in epilepsy. Epileptics usually have an excellent appetite; indeed, they are generally excessive eaters. Taking our city populations as a whole the statement is probably not extreme that excess in eating probably does more harm than excess in drinking. There are any number of city people who get but little exercise who eat far in excess of their needs, and do it to their detriment. If this be true of the average city man it is particularly true of the epileptic. He needs to be kept on a restricted diet. While I am not inclined to advocate a strict vegetarian diet, it nevertheless is probably true that meat and eggs are the kinds of food of which an epileptic ought to eat very little if any. This matter of restricting the diet is merely the other side of what has already been said in regard to keeping up free elimination, for no small part of the task of the excretory organs is to eliminate from the body the imperfectly oxidized excess of food ingested. It necessarily follows that if the patient is kept from taking any unnecessary amounts of food the task of the eliminating organs will, to that extent, be the easier.

One other phase of the treatment of epilepsy, and I will close. A few years ago there passed over the profession a wave of enthusiasm for the cure of epilepsy by operation on the brain. Large numbers of epileptics were trephined, and, in the first enthusiasm, cases were prematurely reported which seemed to show brilliant results. Time has, however, caused the brilliance to fade away. Many of the cases reported as recoveries presently fell back into a condition as bad as before. Occasionally some poor wretch found himself, after a portion of the brain cortex had been removed, not only suffering from his epilepsy as of old, but with an arm or a leg permanently paralyzed. It can probably be stated as a safe conclusion that surgical intervention in cases of epilepsy is of great value where it is possible to remove some gross anatomical lesion such as a blood clot, a spiculum of bone, or some such evident cause of cortical irritation, but aside from such cases surgical intervention holds out scant promise of relief. To illustrate the problem as it presents itself, let me, in closing, report the following case:

A patient recently came to the hospital who has, during the past two years, had a number of attacks of acute delirious mania. These attacks last from half an hour to several hours. During their continuance he is quite actively maniacal so that, on one occasion, five men were engaged in holding him down. He has no recollection of them after they pass off, unless it be by the effects left by them.

At once the thought comes up, are these epileptic in origin? When it is further stated that about two years ago patient was struck on the head (right side) by a log chain and that he experiences curious or painful sensations at the site of the old wound, the suggestion is still stronger that we are dealing with a psychic epilepsy of traumatic origin. On this basis patient was sent to DOCTOR H. O. WALKER with a view to having the skull trephined. Upon careful review of the case certain additional facts were brought out which materially altered the complexion of the case. In the first place DOCTOR WALKER found himself in the predicament of not knowing where to trephine. The scar of the old log chain wound is pretty accurately located over the center for the left leg, but patient has never had any sign of either spasm or paresis in left leg; in fact, he has no evidence of any disturbance of motion, sensation or function anywhere. To trephine over the center for the left leg would be futile. Inasmuch as the symptoms are psychic only one might say, "very well, trephine over the frontal lobes" but on which side? He being right-handed, it is probable that his left frontal lobe would be the controlling center for his mental processes. So much for the problems to be settled before trephining. We decided not to trephine for the reasons already given, but still more on account of the following state of facts:

Patient is a temperate farmer of exemplary habits and character. He has, all his life, suffered from periodical attacks of migraine as did his father before him and as does his sister. It turns out that these attacks of acute mania always begin like an ordinary migraine such as he had had for many years. The pain steadily increases in itensity and at last he loses control of himself and becomes maniacal. Instead of being epileptic these attacks are merely extreme manifestations of migraine.

Now comes the instructive feature. Patient has never had his eyes examined, although he has suffered all his life from migraine, and further states that he is unable to continue reading for any length of time on account of his eyes giving out. The attempt to go on reading makes his eyes and head ache. The case deserves to be considered because there is excellent reason to believe that instead of requiring trephining he has long required proper glasses. I suspect that with proper glasses steadily worn and six months steady use of a few drops of tincture cannabis Indica three times a day, our patient will find a great change for the better, and I suspect that an operation for trephining would have cast additional doubt upon an operation which in proper cases is of the greatest value.

CONCERNING THE ADMINISTRATION OF DRUGS.*

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Of the numerous phases of this question I will confine myself to the one that has to do with the administration of drugs in relation to meals.

This subject is one of great importance and therefore one that should receive much attention from medical practitioners, writers and teachers. But does it receive the consideration it deserves? I do not think it does and I believe even a cursory glance through the part of any article of a standard work on practice, which is devoted to the medicinal treatment of a disease, or even a short talk with a student who is taking a course of lectures on this subject in any of our medical colleges, will convince anyone, who is inclined offhand to doubt this statement, that I am right in this contention. Indeed there is often in text-books and lectures such scant attention to the details of the administration of the drugs recommended that it would seem many times as if our writers and lecturers had so used up their energies in giving a definition of the disease under consideration, together with its etiology, symptomatology, morbid anatomy, diagnosis, prognosis, duration, mortality, sequelæ and so forth, that when it came to the medicinal treatment they were able only to give a list of the therapeutic agents indicated, and then to fall back exhausted before they had time to give any specific directions concerning the administration of these medicinal substances.

It may be advanced that many of the principles involved in this question are elementary and have no place in a work on general practice. I do not think this meets the case, for the reason that it is the patient, and not the prescriber who suffers when there is a failure to administer the remedy exactly in the best form and at the proper time. So far as the patient is concerned the result is the same whether the person who is prescribing for him has never known the principle involved, or once knowing, has forgotten it. No one, on the other hand, has ever known too much of a subject, even if that subject has been a medical one. The question of giving a drug before, during or after a meal is often one difficult to decide. Not only must the object to be attained be taken into consideration but also the nature of the drug itself.

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*Inaugural paper read before the Detroit Academy of Medicine, April 10, 1900.

Some of the points to be considered in administering drugs by the stomach during digestion are the following: The drug may unite with some of the food or digestive fluids or both and produce an entirely new compound which may be either absolutely inert or may have effects absolutely different from those that had been expected. Or, again, on account of the food present, the drug, though unchanged, may be absorbed so slowly that the effects will be too long delayed to be of any value. When, on the other hand, the drug is given when the stomach is empty, the rate of absorption may be so rapid that too great an effect will be produced, or, in the case of the administration of irritating drugs, when no diluting food is present, damage may be done to the stomach itself. Again, certain drugs, as for instance some of those designed to assist digestion and nutrition, have to be given at a fixed time before or after a meal, in order to get the physiologic effects; and any departure from these exact rules will lessen or destroy the expected action. The following is a case in point:

A number of years ago a physician in the earlier years of his practice was treating a person suffering from the effects of overproduction of uric acid in the system or in other words from the condition known as lithemia. He read through a rather lengthy article on the disease from the pen of a recognized authority on the subject. Finally, at the end of it he was advised to administer ordinary doses of dilute nitric acid before meals. This was declared to be a specific in this class of cases. He did as he was directed and kept his patient on this drug for several days. Finding no relief he was about to discontinue its use when it occurred to him that perhaps he might get better results if he gave it, say a half hour before the meal, rather than just before, as he had been doing. This change was all that was needed. His patient made a rapid recovery. Numerous patients since have been equally fortunate. In this case, besides the extended suffering of the patient, the physician lost valuable time and came near losing the aid of a valuable agent for all his subsequent cases of a like nature. It is certainly safe to say that others, relying on this article, have followed these directions and that some have given up the use of the drug for the purpose named. All of which could have been avoided by explicit direction concerning the time of the administration of the drug as it related to the meal.

Another and commoner case is found in the administration of quinine. In various diseases, and more particularly in those of malarial origin, it is advised that this drug be given freely, even up to doses of a drachm or more. Nothing is said about the exact time these should be given. This question is left to the one prescribing. If he recalls the fact that this drug applied in its powdered form to the stomach walls often causes nausea, vomiting and even gastritis; and if he further recalls the fact that it is feebly soluble in an alkaline or neutral solution but freely so in an acid one he will direct the drug to be given from one-half to two hours after eating. By doing this he will have the stomach walls protected by food and the contents of the same organ in an acid condition, a combination of circumstances that will avoid the disadvantages mentioned above. If he does not recall these characteristics of the drug the patient will have to suffer the consequences of his ignorance or forgetfulness.

The whole danger would be avoided, however, if our text-books always contained explicit directions for the administration of any drug recommended for exhibition in treating a disease.

Again, the administration of iodin, in the form, say of the compound solution or of the tincture is often carried out improperly. Everybody, if he stops to think, knows that these substances combined with starch, form an insoluble compound, and he also knows that starch is practically always present in the stomach during the digestion of a meal. Therefore, if he is doing the best for his patient these remedies will be given, say an hour before meals, and well diluted with pure water. But if he is negligent they may be given during digestion and as a consequence the iodin and the starch of the food meet to form an iodid of starch—a substance about as valuable for medicinal purposes as a glass bead or a copper penny.

A late work on therapeutics uses these words in its article on iodin and its preparations: "As the iodides are easily decomposed, this fact must be borne in mind when prescribing them, and, as a rule, it is best to administer them simply dissolved in water or combined with other iodides." Not a word is said about the condition of the stomach or the danger of decomposition of the iodides by coming in contact with food products and gastric secretions. Out of sight, out of mind, seems to express the condition here.

The effects of a lack of precision in directions for the administration of drugs in reference to meals are not as bad as they formerly were. This desirable result has come about, however, not by greater attention to the subject under consideration, but rather by change in the form of drug administration itself.

The first of these changes to bring relief was the substitution of a simple prescription of one or two drugs for the old polypharmacy with its prescription of a dozen or more ingredients, which, in administration, could not be made to unite upon any one time in reference to a meal, any more than the different meridians of an astigmatic eye could be made to focus upon a given point in space.

The second of these changes was the adoption of routes for the introduction of drugs into the system other than by the stomach. Of these the hypodermic one is much the commonest and the most important. All of them, however, are of the greatest value for the purposes in question as they can be made use of without regard to the stomach or its contents.

While the changes in the prescriptions themselves and in the routes by which the drugs are introduced into the system have done something to lessen the extent to which meals have interfered with drug medication, the greater part of the original question is still left to be solved. How can this be done? One thing is certain, the importance of the subject must be impressed much more deeply on the medical mind than it is today before any great result can be expected.

This paper is not intended to be a series of directions for bringing the most desirable consummation about. Its purpose is simply to call the attention of those present to a condition that should be changed, rather than to suggest a way by which this can be done, and to conclude by declaring that to the individual or group of individuals who may accomplish this change, heartfelt thanks will be extended not only from innumerable patients but also from a line of physicians extending from the recent graduate writing a prescription for his first patient to the old practitioner doing the same for his last.

THE PHYSICIAN AND THE PUBLIC.*

BY WALTER J. CREE, M. D., DETROIT, MICHIGAN.

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SEVERAL months ago there was brought up for discussion at a meeting of this society the question "What should be the character and scope of papers presented to a medical society?" Nearly all the subjects mentioned at that time have since been considered with the exception of "Medical Ethics," and I will now briefly discuss the special bearing of that one on the attitude of physicians toward each other and the effect this has upon the public.

I have called my paper "The Physician and the Public" because they are so closely related, and because the actions of the profession so often mould the opinion of the public. We hear a great deal about medical ethics at graduation time and in commencement orations, but do not fully realize what it all means until we are engaged in active practice and see the practical application of the code. I wonder how many physicians have a copy of this formula and are familiar with its teachings? With your permission I will review certain parts originally adopted by the American Medical Association at Philadelphia in May, 1847.

ARTICAL 4, *Section 2.*—In consultations, no rivalship or jealousy should be indulged in; candor, probity, and all due respect should be exercised toward the physician having charge of the case.

Section 7.—Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment did not receive his assent.

Section 10.—A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance. The practice of the latter, if necessary, should be justified as far as it can be, consistent with a conscientious regard for the truth and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also refrain from those extraordinary attentions or assiduities which are too often practiced by the dishonest for the purpose of gaining applause or ingratiating themselves into the favor of families or individuals.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

So much for consultations, as far as the code is concerned. How does the precept work in actual practice? Personally, I have no fault to find as far as consultations are concerned, as I believe that due consideration has always been shown me, but from my observations I conclude that all physicians have not been so fortunate. The following is quoted from a recent publication:

"It is the hesitancy of many men to ask for a consultation for fear the consultant will retain the patient. It is natural for the patient or his relatives to consider the consultant, who is called in, to have more skill than the regular attendant, and therefore the tendency to call him in on the next occasion. Instances have occurred in which the consultant has acted in such a way as to arouse the just suspicion of the attendant. This state of affairs, more than anything else, perhaps, has prevented many consultations, and has been productive of much bad feeling and hardship."

ARTICLE V, *Section 4.*—A physician ought not to take charge of or prescribe for a patient who has been recently under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has resigned the case or been duly notified that his services are no longer desired. Under such circumstances no unjust and illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and as many diseases are naturally protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge or skill.

It is said that some physicians will do what the above explicitly says they should not do, but such statements coming from the public should be taken with a good deal of caution, as frequently remarks may be made that are not intended to be prejudicial, but are misinterpreted by the patient or his friends. This being the case it only proves how careful the physician should be in conversation with his patient. The following came to my notice and might be worth while relating:

A certain physician had treated a lady who made a good but tardy recovery. She was advised not to be too rash about going out, and to stay indoors during inclement weather. Against the advice of the physician, she went out and suffered an attack of myalgia. Fearing another siege of sickness, and listening to the solicitations of a friend who had the "best doctor in the city," she called in the friend's physician. The doctor, inquiring into the history of the case, found that she had had a previous attendant, and learning that he had not been paid his fee refused to treat the case unless the former attendant was paid. The lady friend had impressed the patient with the idea that the former treatment had been valueless and advised her not to pay the doctor. However, the first doctor received his pay. I think you will all agree that the last physician is usually the only one receiving a fee, and if this plan of seeing that the former attendant is paid could be carried out there would be less changing of doctors by the public and possibly larger bank accounts of physicians.

ARTICLE V, *Section 5.*—When a physician is called to an urgent case, because the family physician is not at hand, he ought, unless his assistance in consultation be desired, to resign the case of the patient to the latter immediately on his arrival.

This section of the code is commendable, but I am afraid it is not always obeyed. I know of physicians being called in emergency cases trying all in their power to supplant the regular attendant. While I was writing this paper a physician telephoned to me that he had been called in to see one of my cases—infantile convulsions—and informed me of what he had done, and that he had told the family to send for me as soon as possible. Such action needs no comment, but how often does the reverse happen?

It is poor practice to examine the medicine prescribed by the previous attendant as is the habit of some physicians for the purpose of criticism. I recall a case wherein a physician said that one of my prescriptions was incompatible and advised the patient not to take it. At the same time this man was in the habit of prescribing reduced iron in simple syrup! I am told that in times past in this city it was the practice with some physicians to throw the medicines out of the window, hoping at the same time to as easily remove the other doctor from that family forever. I do not think this is done at present, but with some there is a more gentlemanly (?) way of accomplishing the same result.

I have mentioned some parts of the code to show what the relation of a physician should be toward his brother, and believe that if the tenets of the code were observed by all practitioners the opinion of the public for the medical profession would be much better than it is at present. An attorney in this city is quoted as saying, recently, "You doctors do not know your business. You do not know any more about the treatment of smallpox than you did fifty years ago." A representative of the bench, on a certain public occasion, while speaking on expert testimony, said that he had "heard liars classified as positive liars, comparative liars, damned liars and medical experts." The same legal representative recently said that "a large portion of the mission of justice is thwarted by the so-called expert medical testimony." The paper from which I quote, editorially says: "The judge was chiding the legal profession, although he did not mention them. The members of the profession were doing well before the lawyers went out with a money bait; the physicians were tempted and fell into the snare set by the lawyers." The paper then pleads that the blame that tends to detract from the honor of the great profession should be at least equally divided. In short, if the members of the medical profession "do not wish to be made monkeys of," as the phrase is, they will do well to resist the blandishments of the lawyers and keep out of court. I also noticed in a paper of recent date the following: "A Bay county jury has decided that it knows the difference between an insane man and a murderer." The paper facetiously says: "That puts the doctors where they will have to play ball or get out of the game." The profession of this city and state know the attitude of politicians toward the medical profession.

The difficulty of passing any medical law until recently will bring this opposition to mind.

Recently so many matters professional have come to the public notice through the daily press that Article VI, *Section 2*, of the code might well be quoted. It says: "A peculiar reserve must be maintained by physicians toward the public in regard to professional matters, and as there exists numerous points in medical ethics and etiquette through which the feelings of medical men be painfully assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may personally be injurious to the individuals assailed, and can hardly fail to bring discredit to the faculty."

It has been said that one reason for the want of harmony among physicians is the number of inferior men in the profession. This may be true to a certain extent, but the derogatory remarks of an inferior man are not so much to be dreaded as those of the polished gentleman whose claws are covered with velvet. Again, all derogatory remarks are not made by the inferior man. I know of a medical gentleman of great ability whose advice was "Never run a man down; rather condemn him with faint praise."

I believe there is an increasing ethical feeling among the younger members of the profession, but maintain that the profession is not regarded more respectfully by the public because it does not respect itself. The public observe this discourtesy and feel that they, too, have a right to refer to medical men in terms rarely applied to members of other professions. There should be more of a fraternal feeling existing between members of our calling. How this can be brought about I am not fully prepared to say, yet I think that there is more good feeling and harmony today than in the past. It is not necessary for one physician to antagonize another because he holds views opposite to the generally accepted theories in regard to disease. What is today considered the correct theory as to a disease may tomorrow be brushed aside, as have been many theories in the past. When these differences of opinion are brought to public notice the profession is injured.

This want of harmony has done much to encourage the quacks and I note a recent article bearing on this subject. "The Medical Trust" is the name applied to the regular profession by osteopaths, Christian scientists and all the multiferous swarms of antimedical ranters and ignoramuses. Nothing more strikingly reveals the psychologic make-up of these people and their rank demagogery than this charge of "monopoly" and "trades-unionism." We can only wish that our sociologic condition were within hailing distance of the time when there shall be sufficient *esprit de corps* to beget the merest semblance or beginnings of a "trust." Perhaps the "soul of good things in evil" may in this case be found in a reaction against the far better realized unity of the antis. So well organized are these that we shall have to abolish the fatal individualism which threatens us with professional extinction. As of old, if we do not hang together we may (if our blood-thirsty enemies have their will) be forced to hang separately."

I read in another article of recent date the following: "No mere rules of ethics and no mere rules of law can raise or maintain professional standards. Common violation of many of these rules is a standing grievance, but the remedy does not lie in mere rules. True reform must come from within. The profession must rise to its feet in private practice, in the halls of legislation, in its courts, state and national societies to vindicate the standard which it professess to uphold."

In conclusion, I do not wish to be understood as saying that all the profession and the entire public are in the wrong. Far from it. There are many noble men in the profession and a large proportion of the public appreciate the efforts of medical men to alleviate suffering humanity. The medical profession will receive the honor and respect which it deserves when each and every member considers himself a stone, clinging to and supporting his brother and together upholding that great structure—medical science.

PREPARED SELVAGE-EDGED IODOFORM GAUZE.*

By EMIL AMBERG, M. D., Detroit, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

As it is often necessary to use small pieces of iodoform gauze, it might be well, from an economic point of view, to have them prepared ready for use, in small quantities. This box, about 6.2 x 4.2, and 1.2 centimetres wide, contains three times two strips of iodoform gauze in wax paper. Each strip is fifteen centimetres long and one centimetre wide. The gauze is selvage-edged and was purchased in Germany. I had some gauze sent to me and show you a sample. An eastern firm made strips of iodoform gauze for me and arranged them as described above. I strongly recommended the selvage-edged gauze to them, and they wrote me that they intended to place the gauze on the market. The superiority of selvage-edged gauze is apparent for general surgery as well as for otology. I might add that the boxes might better be sealed.

TRANSACTIONS.

WAYNE COUNTY MEDICAL SOCIETY.

MEMORIAL MEETING, MAY 31, 1900.

The President, GEORGE A. KIRKER, M. D., in the Chair.
Reported by WALTER J. CREE, M. D., Secretary.

ADDRESSES ON DOCTOR FROTHINGHAM.

By JOHN J. MULHERON., M. D., Detroit, Michigan.

We have met to pay in this public manner our tribute of respect to the memory of one of the leaders of our profession—a strongly individualized character. The review of such a life as that of our departed friend and professional colaborer, could we follow it out in detail, would furnish us much food for profitable reflection. The biographies of successful men are treasure-houses from which those coming after them have ever drawn help and inspiration. They are the most profitable literature which can be placed in the hands of the young. He whose death we mourn has left behind him an example of domestic purity, civic distinction and professional worth which may be singled out for emulation by those entering upon life's great work. Such lives do not go out hissing in gloom. As the glorious orb of day continues, after it has disappeared below the western horizon, to bathe the earth in the beautiful after-glow, in which there is a wealth of peace and soulful content, which does not always pertain to the lurid meridian rays, so do the lives of the good continue long after they have departed from the sphere of activity to exert their benign influence.

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*Read before the Detroit Medical and Library Association.

It was my privilege to know DOCTOR FROTHINGHAM for a period covering the average duration of a human life. The acquaintance began in October, 1867, when he became Demonstrator of Anatomy in the University of Michigan, in which I was at the time a second year student. This acquaintance ripened in the course of a few years into an intimate friendship, which was fostered by his association with me as one of the coeditors of the *Michigan Medical News* and by other circumstances whose effect was to develop closer relations than usually occur between fellow practitioners of medicine. The period of our more intimate friendship covered the most exciting medico-political epoch in the history of our state. In medical politics, as in that covering the larger field, there is ample room for honest diversity of opinion, and in the somewhat tumultuous period referred to DOCTOR FROTHINGHAM and I were once ardent coworkers and again equally ardent antagonists. At no time, however, did a difference of views in regard to a policy degenerate into any semblance of personal animosity. In the last conversation we had the exciting scenes were revived, and I assure you, gentlemen, that I will ever recall with pleasure and unspeakable satisfaction a remark of DOCTOR FROTHINGHAM's on that occasion: "We have had some pretty warm fights, haven't we, MULHERON? But I cherish nothing but the friendliest feelings toward you and I don't believe you have anything laid up against me, have you?" The remark was characteristic of the man and illustrative of the true chivalry of his nature. His was the broader type which never permitted personalities in a dispute to becloud issues. Those who have crossed words with him can testify to his skill and prowess as an adversary, but the controversy once ended no one was more ready or, indeed, anxious than he to meet his opponent on *ante bellum* grounds. The enthusiasm of his attack and the vigor of his onslaught were at times misinterpreted but it was only by those who had not learned to know the man. Enthusiasm and vigor were essential fibres in his mental and moral constitution. He never did aught by halves. Once convinced that he had the right side of the dispute, (and he never entered a contest without this conviction), he was in the fight from start to finish and always bore himself that his opposer might beware of him. He was a foeman worthy of the stoutest steel. With him life was serious and neither listlessness nor frivolity was ever countenanced in its affairs.

Enthusiasm and vigor characterized his every effort, and the noble professional monument which he erected was the very direct product of these attributes. The New England stamina, earnestness of purpose and inflexibility of character which were his inheritance combined to make DOCTOR FROTHINGHAM a virile character.

It may not be out of place on this occasion to refer briefly, and without venturing any expression of opinion on the question, to the event in his medico-political career which, perhaps, more than any other revealed DOCTOR FROTHINGHAM'S powers as a controversialist. This was the question of the introduction of homeopathy into the State University, and I would premise this reference by the assertion that there was no one less in sympathy with the dogma than he. Not that he objected to the view which any man might entertain regarding the action of a drug. He was broad enough to concede that there is room for honest difference of opinion on this point, but his scientific mind rebelled against an empiricism which prescribes only for symptoms, and his honest soul held in abhorrence and detestation the hypocrisy of the man, or set of men, who, either in medicine or in religion, assume a name to which their practice does not religiously conform. The friends of homeopathy had through years of patient and persistent agitation succeeded in so molding the sentiment of the State Legislature that the appropriation for the conduct of the medical department of the University was made conditional to the creation of certain homeopathic chairs. The plan adopted and forced upon the Regents was to have homeopathic chairs on materia medica, practice, and surgery; instruction in the other divisions of medicine, anatomy, physiology, chemistry, pathology, and obstetrics to be given by the regular professors. The latter were required to examine candidates for graduation on these subjects and to certify to their standing therein. DOCTOR FROTHINGHAM favored this plan as one which would meet the exigencies of the situation and would in no wise compromise his obligations to regular medicine. He contended, furthermore, that as knowledge had ever been the most effective antidote to superstition and false theories, the plan proposed would prove a most effectual blow to homeopathy. His voice and pen, animated by the fervid enthusiasm of his nature, were enlisted in its advocacy. The plan, however, met with violent opposition on the part of the regular profession, and the State Medical Society declared very positively against it. Those who, were present at the Ann Arbor meeting when this action was taken will never forget the excitement of the occasion. DOCTOR FROTHINGHAM promptly tendered his resignation which he accompanied by a speech which for impassioned rhetoric and fervid eloquence has never been equaled before a medical gathering in this state. He was, as a matter of course, full of his subject, into his presentation of which he threw his intense personality. The sizzling arguments which were thrown off from the white heat of his burning enthusiasm were arrayed in language which proclaimed him capable of the highest flights of oratory. The effect of that speech was marvelous beyond description. Under the spell of its impassioned eloquence even the most strenuous opponents of the plan were momentarily overcome, and had not some of the shrewder politicians delayed further action for a full half hour there is little doubt that the previous action of the society would have been then and there rescinded. That speech will for many years stand out as the greatest ever delivered by a medical man in this state. Time demonstrated that DOCTOR FROTHINGHAM's contention was right. After the students had been well grounded in the fundamentals of scientific medicine under the teachings of the regular faculty so few of them continued in the homeopathic annex that the excrescence began to atrophy. The homeopaths read the handwriting on the wall and eventually secured a full corps of their own professors. The divorce from the regular department was made complete and the regular faculty could not, by the most strained interpretation of the situation, be held responsible for the graduation of irregulars. DOCTOR FROTHINGHAM's judgment was thus vindicated.

The question of homeopathy in the University of Michigan agitated the profession of the entire country and naturally found its way into the American Medical Association, whither DOCTOR FROTHINGHAM naturally followed it. Its reception there tallied very closely with that accorded it in the State Society. There was this difference, however: its judges were removed from the local feeling which had to a degree been fostered in this state by rival medical schools. Thus, in spite of the innate abhorrence of the dogma, the status of affairs in the University was adjudged more evenly on its merits. DOCTOR FROTHINGHAM's presentation of the case, his unanswerable logic and impassioned eloquence decided the animated contest if not directly favorable to the University at least not inimical to it. Unquestionably but for his masterful effort the result at this final court of appeal would have been a well nigh fatal blow to his alma mater. No one realized more keenly than he the import to all that he held dear which hung upon the action of the American Medical Association, and his effort was correspondingly heroic and grand.

There was no prouder day in the doctor's calender than that on which, a few years after he had resigned from the State Medical Society, he presented himself for readmission and when he was received back with a cordiality which was emphasized by his election to the Presidency of that body. The pathos of his intense nature was deeply aroused by this action of the society and for once in his life he was unable to give expression to the feelings which welled up within him. It was the crowning triumph of his medico-political career and the memory of it was a pleasing solace in after years.

If I were to state what I thought were the special qualities in DOCTOR FROTHINGHAM to which his eminence was due, I should declare them to be his industry and his power of concentration. In these respects his life was indeed a model. His motto was "whatsoever is worth doing at all is worth doing well," and he had cultivated the faculty of giving the work in hand his undivided energy. As a general practitioner he was noted for his earnestness of purpose and the reputation which he thus established as a careful, conscientious worker attached to him a large clientele, and his subsequent renown as an ophthalmologist was largely based on the painstaking work which he devoted to the most trivial case. With him indeed no case was trivial. He had great faith in the power of methodical work and maintained that the failure to succeed, whether in medicine or in other fields of human effort, was in the vast majority of cases directly traceable to listlessness and slipshod method. While there are, doubtless, differences in natural endowment the chief of these differences is in the faculty of devoting to the duties of life as they present themselves one's undivided energy. No brilliancy in the matter of natural gifts can take the place of this latter faculty, and this faculty, it was DOCTOR FROTHINGHAM's contention, is capable of continuous development. I remember distinctly his remark to me on one occasion to the effect that he was by nature inclined to take things easy, and that it often required great effort on his part to overcome his inherent inertia.

DOCTOR FROTHINGHAM held decided if not, indeed, peculiar views on the subject of the preliminary education of the medical student. He particularly combated the idea that the so-called classical education, that is, a profound knowledge of the dead languages, is the best preparation for a course in medicine. He was one of the first educators who disputed the proposition that the higher medical education presupposes the classical education, so-called. His characteristically vigorous articles on this question attracted wide attention and met with endorsement in many eminent quarters. He argued that the young man about to enter upon the study of medicine need have and indeed should have no greater knowledge of the dead languages than sufficient for him to comprehend the terminology of scientific terms; that the time spent in acquiring a more profound knowledge of the classics is misspent. He should rather prepare himself by a study of the cognate sciences. Such study is more valuable as a trainer of the intellect besides having the additional advantage of storing the mind with facts of value in connection with his life-work. The superior gloss and finish which has been claimed for the classical education he held to be very problematical. He alluded with telling effect to the fact that the men who have made the greatest marks in the medical world, from the days of the great HUNTER down to the present, have in no sense been noted for their profundity in the classics. A number of them have indeed been very deficient even in the matter of general education in their own native tongues. And what has been true in the past in this respect he held to be growing more pronouncedly true in these later days of the development of scientific medicine. This development has within the memory of even middle-aged men still living outgrown the possibility of any single individual to keep pace with it and the excuse for specialties has consequently arisen, notwithstanding the fact that the specialty is sometimes adopted from the outset by those whose indolence unfits them for a proper proficiency in general medicine. DOCTOR FROTHINGHAM's views in regard to the question of preliminary education were probably the outgrowth of his own experience. He had himself not had the classical education whose value has been so much extolled and he did not because of this fact feel himself handicapped in the race. In his own case and in that of the examples which he cited he did not, however, accord the proper prominence to the indomitable will and untiring industry before which even the obstacle of a defective preliminary education acted rather as a spur than as a brake. The arguments which he advanced were too much of the *post hoc ergo propter hoc* nature and were effective chiefly because of the vigor and eloquence with which they were presented.

In the concerted movement on the part of a few of the leading medical schools looking toward the general elevation of the standard of requirements for the degree of doctor of medicine DOCTOR FROTHINGHAM bore a conspicuous part. This movement might be very properly termed the renaissance of medical education in this country. It took tangible form in 1875. DOCTOR FROTHINGHAM had then relinquished general practice and was devoting his time and energies to the development of ophthalmology, to the professorship of which he had been appointed in the University. Previous to this the diseases of the eye had been embraced by the chair on surgery. On being inducted into the new chair DOCTOR FROTHINGHAM threw into his specialty the energy of his mature manhood, being peculiarly fitted for the work through his large experience in general medicine and surgery. The natural consequence was that in a comparatively short time ophthalmology became a distinctive feature of the medical department and its teacher was recognized as one of the leading men on this subject in this country. He was not content, however, with the distinction which his chair had achieved but was ambitious that each of the other chairs in the department should be equally effective. He realized the disadvantages which embarrassed some of them arising chiefly from the comparative paucity of clinical material. To remedy this defect he advocated the establishment of clinical chairs in this city of Detroit connected with the medical department of the University. In this it was very apparent he had no selfish end to promote. The clinical material for his own work was ample. The citizens of Ann Arbor, however, regarded the proposed removal of the clinical teaching from the University proper with much disfavor, and their opposition to the plan degenerated into personal attacks on those advocating it. Those familiar with the heat and rancor which often characterize controversies in smaller places will readily understand the unpleasantness of the position of those who were suspected of endeavoring to introduce the entering wedge which would ultimately remove the medical department of the University from the city of Ann Arbor. While this department added fame to the city the patronage of the students is the main stay in the support of its tradespeople. DOCTOR FROTHINGHAM'S plan threatened the pockets of the latter and the antagonism to him (such is human nature) was thus intensified. He had spent the best twenty years of his life among these people and this treatment of him animated by their selfish interests, was very distasteful to him. Although by nature a fighter, in the commendable sense of the word, he did not feel called upon to endure the personal discomfort and annoyance which the misconstruction of his motives entailed upon him. Advancing years had, morever, begun to exert their mellowing influence and he convinced himself that he owed it to himself and to his family to spend his remaining allotment in more congenial surroundings. He accordingly resigned his professorship and removed to Detroit. His reputation had long preceded him here and he in a very short time found himself in a large and lucrative practice. His interest in the medical affairs of the state did not abate with his removal to this city nor did his professional enthusiasm in the least wane. Up to his last illness he was the wide-awake, up-to-date physician and may be said to have died with his harness on.

Doctor Frothingham was a positive character and this trait had its natural effect on his relations to his fellow practitioners. There are those who make the journey through life without encountering much if any opposition. They avoid obstacles when possible and failing to get out of their way being of plastic fibre they readily accommodate themselves to the situation as it presents. They studiously avoid getting in anybody's way and nobody gets in theirs. The general verdict is that they are nice, pleasant people. Nature has made them diplomatic and they are not harassed by enemies. Such people, however, while being respected citizens and often agreeable associates, leave no impress on their times. Enemies are really helpful to the man of high purpose and pronounced character. They serve him as spurs to endeavor, as incentives to action. "Woe unto you," said even the peaceful saint of Galilee, "when all men speak well of you." The life of the man of convictions with the courage of which he is imbued, cannot flow on like the placid, unruffled stream. It does not deflect its course to avoid an obstacle in its path or suffer an impediment to dam it back into the stagnant pool. It rises above these and rushes over them and when the obstacles are great the course is correspondingly disturbed. Doctor Frothingham, to the credit of his memory be it said, had his enemies, but he also had his friends. No man was ever less of a trimmer than he. There was that in the woof and web of his moral fibre which made his gorge to rise at suppliancy and time serving. His was not the colorless, negative character which either evades opposition or suffers itself to be moulded by circumstances—which neither suffers much nor enjoys much. No man appreciated friendship more than he and none more regretted enmity, for his was a high strung, sensitive nature. But for him to be false to his convictions either to win or retain a friend would be to suppose something incompatible with his moral fibre. We of the Wayne County Medical Society, of which he was an enthusiastically active member and for a term the President, learned to know and appreciate the finer shadings of his rugged character. He was not of those who wear the heart on the sleeve, but when the thin outer crust of his reserve toward strangers was once broken there was found a cordiality which had in it a powerful personal magnetism. He was not in any sense the hail fellow well met who has the faculty of simulating cordiality and of effervescing at will. His cordiality was of the nature complimentary to the recipient of it.

An upright citizen, a devoted husband, a father whose example is a priceless legacy to his children, a physician who has left his impress on the medicine of his time, a true friend, a respected adversary, a clean, honest man! What greater tribute can be paid to a man's memory? These attributes were all comprised in Doctor George E. Frothingham, and I now drop upon the bier of this illustrious man my sprig of immortelle.

* * *

BY EDGAR B. SMITH, M. D., Detroit, Michigan.

George Edward Frothingham, the youngest son of Bradbury and Eliza Frothingham, was born in Boston, Massachusetts, April 23,

1836. His literary education was obtained at Andover, after which he taught school for a few years; then he became a student under the great surgeon and physician, **William Warren Greene**, and in the spring of 1864 he graduated from the medical department of the University of Michigan and began the practice of his profession at North Becket, Berkshire county, Massachusetts.

It does not take much to change one's course in life. While peacefully engaged in the practice of his chosen calling, his old professor was called to fill the chair of surgery in the University of Michigan at Ann Arbor, in the fall of 1867, and he was assigned to the duties of demonstrator of anatomy and prosector of surgery at the same University. For thirteen years the doctor, by study, research and practice in general medicine and surgery, fitted himself for a greater field of usefulness, and in 1870 was appointed professor of ophthalmology

In 1888 the doctor was elected chairman of the section on ophthalmology of the American Medical Association. In 1889 he was elected president of the Michigan State Medical Society. For three years he was one of the editors of the *Michigan University Medical Journal* and during that time wrote many of its editorial articles.

In 1889 **Doctor Frothingham** resigned from his chair at the Michigan University, with which he had been connected as a teacher for twenty-two years. In September, 1889, he moved with his family to Detroit, where he continued to practice his specialty until he passed away, his sons, **Doctor George E. Frothingham.**, Jr., and **William B. Frothingham** being associated with him. The doctor was consulting ophthalmologist to Harper Hospital, a member of the Wayne County Medical Society, of which he was ex-president, and of the Detroit Medical and Library Association.

Doctor Frothingham took an active part in all questions affecting the people. He was at one time proprietor and editor of the *Ann Arbor Register*, and was the power that made the paper. The doctor's extensive reading, teaching and general practice made him a most worthy type of the medical profession to enter upon a specialty, like **Doctor Williams**, of Cincinnati, and **Doctor Agnew**, of New York, who by their practical training in general medicine and surgery laid the foundation for special practice. **Doctor Frothingham** was famous as a general surgeon before he limited his practice to ophthalmology, having performed many important operations, one of which received notable mention in the address on surgery in the International Medical Congress, held at Philadelphia in 1876, and also in an article presented by **Doctor Van Buren**, of New York, at the same meeting, it being specially mentioned as one of the most creditable achievements of the past century of American surgery. The operation was for traumatic aneurism of the right common carotid. The internal jugular vein was wounded. It was ligated and the patient recovered. The trauma was due to a gunpowder explosion. In the *American Journal of the Medical Sciences* in 1877, the doctor reported a case of pulsating tumor of the orbit, resembling a true aneurism. The doctor ligated the common carotid, removed the tumor, and recovery ensued.

Doctor Frothingham was one who labored long and earnestly to secure material for dissecting purposes, and his reply to GOVERNOR BEGOLE's objection to grant this was both dignified and brilliant.

In 1876 the Michigan State Medical society had a resolution offered at its meeting which was to censure the medical faculty of the University of Michigan for allowing homeopathic students to attend lectures in medicine and surgery. The matter was also taken up by the American Medical Association. DOCTOR FROTHINGHAM contended that the faculty was not only justified in teaching these students, but were morally called upon to do so. The doctor's position was sustained by the American Medical Association. The following are two strong assertions he used in discussing the question: "One of the greatest philosophers of modern times has declared that the only antidote for superstition is knowledge;" and again he said, "Need I but drag this hideous ethical monster before you to excite your disgust? Before no civilized people can you sustain such a position as this resolution embodies, but pass it, and if you can bear the infamy I can bear your censure."

I have known DOCTOR FROTHINGHAM by reputation for some years and from the time of the completion of the new hospital in Ann Arbor up to the time of his death I was intimately acquainted with him. I knew him during his last days at the University. There are a few here present who can imagine what his feelings were when he found it his duty to sever his connections with that institution. It required a strong determination and great force of character to take the step DOCTOR FROTHINGHAM took at that time; but he realized that he owed something to himself, his family, and the dignity of his profession. He accordingly resolved to be the one to take the initiative, and so sent in his resignation. For a quarter of a century he had lived and labored in that University town; lived not only for himself and family but for the great profession; labored that the great University might be still greater, and he lived and labored not in vain. His coming to Detroit, though but a few miles away, from Ann Arbor, was to a new field. It was like entering upon a new undertaking, and for a man so close to the time of his alloted years it was no light experiment. Yet how well he accomplished what he had set out to do we all know.

DOCTOR FROTHINGHAM's connection with our beloved Wayne County Medical Society was a most prominent one. He saw the good that the society was doing and he enlisted in its ranks and soon became its president. I, personally, had the good fortune to present his name in nomination for president of the Wayne County Medical Society, and you who were present will remember that I alluded to him at that time as the "grand old medical man of Michigan." Tonight, were the whole profession here in the city assembled, I would wish them to know that I have not yet had the privilege of being in close communication with any medical man endowed with greater intellectual attainments, of keener foresight, and of greater scientific exactness. Our society will be the bigger and stronger that DOCTOR FROTHINGHAM has been its president.

When the Wayne County Medical Society first took up the cause for passing a law to restrict the practice of medicine in the state of Michigan, DOCTOR FROTHINGHAM placed himself heart and soul in the work. I had the privilege of here learning the true worth of DOCTOR

FROTHINGHAM. He was a bitter enemy to everything and everyone who opposed progressive regular medicine. He fought hard, but never did he betray the trust of friends, and he always put up an honest fight with the enemy. He would not stoop to low trickery to gain anything. Those who opposed the Wayne County Medical Society's stand upon that occasion know how well and how honestly he could fight. I have seen him in tempting places but the manhood of the man was first; his loyalty to the cause was second. On these lines he fought, and on these lines he helped our battle. I was with him on that occasion longer and closer than any man of the society and I can testify here to these qualities.

I would like to take this opportunity to speak of the good the medical profession has done in the world and make a comparison between the physician or surgeon and the good he accomplished with the good that is done by men in other vocations. Today, in the new civilization, the medical man is in the front rank of the great host of mankind that is advancing science, social culture, mercantile interests and national and international affairs. The medical man was one of the pioneers of this country and year by year he has added his increased strength and knowledge to its progress and has been one of the great factors in the advancement of every form of science and art and economy. The medical man is everywhere present, and everywhere makes his presence felt.

DOCTOR FROTHINGHAM has been no mean factor in building up the reputation of the medical department of the University of Michigan, thereby helping to strengthen the University in all its other departments. DOCTOR FROTHINGHAM has helped to give health to many a sick one. He has made the blind see, not only in this city but people have come to him from the extremities of the state, and many an invalid from other states has been treated by him, his clientele numbering people from nearly every state in the Union. This man has helped the commercial standing of the state and done much to build up its reputation. DOCTOR FROTHINGHAM was a man of learning and culture. The social position of his immediate friends was made better by his mingling with them. He has given health, happiness and wealth to his state. What more could be said of mortal man? Or what greater honor could any man possess?

Lives of great men all remind us
 We can make our lives sublime,
And, departing, leave behind us
 Footprints on the sands of time;—

Footprints, that perhaps another,
 Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
 Seeing, shall take heart again.

RESOLUTIONS.

WHEREAS, The medical profession and the general public has suffered an irreparable loss in the death of DOCTOR GEORGE E. FROTHINGHAM, who was widely and most favorably known as a distinguished teacher, an eminent practitioner, an earnest friend and genial companion; therefore, it is

Resolved, That we, the members of the Wayne County Medical Society, hereby express to the family of deceased our sorrow and our appreciation of the loss we have sustained in common with them, in being deprived of the assistance of a mind so liberal and mature. He ever hated shams and hypocrisy, and spoke out boldly for what he considered to be the truth, regardless of his immediate interest.

Resolved, That a copy of these resolutions be engrossed and presented to the family, and that copies also be sent to the daily papers, to the medical journals of the State and to the *Journal of the American Medical Association.*

Signed: William F. Metcalf, M. D.,
L. E. Maire, M. D.,
Edward W. Jenks, M. D.,
Burt R. Shurly, M. D.

EDITORIAL ARTICLES.

THE PUBLIC SCHOOL PROBLEM.

That our public school system is imperfect is strongly indicated by the spirit of dissatisfaction and the words of criticism that are becoming daily more vigorous and sonorous as this subject is bandied about by tongue and pen. Since the introduction of scientific studies in the curriculum of the common schools the time-honored classics and mathematics also have been branded as it were with a death's head to signify their worn out and profitless resources for knowledge and mental discipline. Education itself has acquired a new meaning. The Spencerian idea of education has taken hold of many men as a result of which the curricula of most modern schools have already evoluted from one frill to another until their resemblance to those of a generation ago is not plainly seen. Were the parents of the nowaday school boys and girls to closely observe the kind and amount of stuff which some would thrust upon their growing minds, in more than one sense they would be made to feel that the boy is father of the man.

The world is growing better. Men are wiser from one generation to another. Nature is, however, the same through time, and our minds are finite. Custom rules our inclinations and determines what our education shall be. This is the age of science. The tendency in all education and in all work in this day is to make sientists of us all. From the culture of the mind and the heart and the inculcation of intellectual power and virtue we have turned to the training of the eye, the ear and the hand in the perception of lesser life, the gossip of the day, the electric spark, and the places of the strong literary characters of a century and more ago have been left unfilled. The old scholastic style is now obsolete but neither false nor shallow. Custom has ordained a different type and we are subjects, willing or unwilling. Let us grasp the new and true with a glad heart and a ready hand but never neglect that which the repetition of history has shown to be replete with wisdom and educational power—the classics.

HYDROTHERAPY IN TYPHOID FEVER.

In spite of the objectionable features of the "cold plunge," the Brand system of treating typhoid fever is fast gaining ground. The results as embodied in statistics founded on this and the other two methods—the expectant and the antiseptic—constitute an unanswerable argument in favor of hydrotherapy. The reduction of temperature and the invigorating effect of the bath upon the circulatory, respiratory and central nervous systems are also strong points in support of this measure. There is an opinion quite decided, however, even among some of those who acknowledge the benefits of the Brand system, that equally good results may be obtained by the hydrotherapeutic principle without the rigorous details of the treatment as usually advocated. **Packard** has publicly announced himself as one of these, and contends not only in the discriminating use of the cold bath, but also in the regulation of the temperature of it. He believes that excellent results may be obtained in temperature reduction and in systemic stimulation by starting with a bath at 85° Fahrenheit and lowering the temperature by the addition of ice water, in suitable cases, without the discomfort and dread experienced from a plunge into a bath of 68° Fahrenheit. Furthermore he expressed a doubt as to the necessity of reducing the temperature of a patient more than 1.5° to 2° Fahrenheit at a single treatment. Those who have adopted the Brand method as a routine measure for all patients at definite intervals will, no doubt, regard such modifications as half-hearted attempts to use the cold bath and as a compromise measure, but it must be remembered that the Brand system is an extremely radical method, and while in the main the results are good, it does not follow that equally good results may not be obtained by adopting the principle without associating with it uncomfortable and unnecessary measures. We have an analogy in the palatability of remedies. The same result may possibly be obtained by the use of palatable and nauseating doses, providing the same drug be used; but that there is a preference, no one will question.

ANNOTATIONS.

THE ANNUAL MEDICAL MEETINGS.

The month of June has come to be closely identified in the minds of many of our profession with the annual medical meetings. After the busy grind of the winter season with its attendant shut-in feelings, the warmth and sheen of spring and early summer are welcome harbingers of a few days of relaxation that may be spent in social intercourse with those whose interests and sympathies are one with our own. Whether or not it has been our privilege to attend the weekly or monthly local meetings in our own vicinities, these annual gatherings appeal to us all, unless, perchance, the lamp of fellowship burns dim or has gone out. One or two more enthusiastic and final seasons of profit and pleasure combined await us before the oncoming of the heated season. The American Medical Association has already met, more than two thousand strong, and a more profitable and pleasureful meeting has not been recorded. Only those who have actually participated in these gatherings know the benefits to be derived therefrom. July 11 and 12 the Michigan State Medical Society convenes on Mackinac Island, following immediately upon the annual meeting of the Upper Peninsula Medical Society. To both of these associations every reputable physician in the State is welcome. Let every reader take a week off for these occasions, and may he live a year longer for it.

MEDICAL NEWS.

THE ATLANTIC CITY MEETING.

THE attendance at this meeting of the American Medical Association was unusually large, and the number and quality of papers presented were equal to those of any preceding meeting. Doctor W. W. Keen, in the presidential address, stated that the membership now comprised nine thousand, a number still less than one in ten of the one hundred thousand regular physicians in the United States; that the Rush Monument Committee had a trifle over $11,000 on hand, and that the antivivisection bill would probably be reported negatively. He suggested that the custom in vogue among the sections of inviting distinguished medical men who are not members, and who may even be hostile to the best interests of the association, to read papers at its meetings be discouraged; and that a section on pathology and bacteriology be organized, which latter suggestion was acted upon favorably. As treasurer, Doctor H. P. Newman reported that the disbursements for the past year had been $57,874.75, and that on January 1, 1900, there was a cash balance of $13,556.38, the assets footing up $27,396.86. Doctor G. H. Simmons gave a detailed report of the work incumbent upon the secretary, and announced that the Honolulu Medical Society had made application for admission to the national association. The next meeting will be held at Saint Paul. The followng officers were elected for the ensuing year: President, Doctor Charles A. L. Reed, of Ohio; first vicepresident, Doctor Abner W. Calhoun, of Georgia; second vicepresident, Doctor Alfred A. Woodhull, of the United States army; third vicepresident, Doctor Philip Marvel, of New Jersey; fourth vicepresident, Doctor William E. Quine, of Illinois; secretary and editor, Doctor G. H. Simmons, of Illinois; treasurer, Doctor Henry P. Newman, of Illinois.

MEDICAL COMMENCEMENT AT ANN ARBOR.

THE degree of Doctor of Medicine was conferred upon ninety-one candidates at the recent graduation exercises of the University of Michigan. The following are the names of those who received diplomas:

Arthur R. Adams, Helen E. Affeld, Harriet V. Baker, Carl H. Ballard, Thomas C. Barnhart, Edgar Bates, Emil F. Baur, Henry H.

Brevoort, Jeannette M. Brigham, Ray H. Burrell, William P. Caffey, Earl H. Campbell, Sara T. Chase, Roy W. Chivers, George W. Clark, Helen F. T. Cleaves, Henry W. Clouchek, Caroline Colver, Herbert R. Conklin, Clifton A. Cooper, Wilber H. Cooper, Benjamin S. Herring, Sue E. Hertz, Wiley D. Hickey, Martin L. Hindley, Theodore A. Hoch, Frank Holdsworth, Maria K. Hopkins, Fritz C. Hyde, Susan B. Jarrett, Kate M. Johnson, Ralph K. Johnson, John F. Jordan, Christ W. Kanne, Minta P. Kemp, Carl S. Kennedy, Aaron F. Kingsley, William J. Lakey, Eva M. Locke, John A. Longmore, Carl H. Lund, James L. Lynch, Harry McNeal, Reynolds C. Mahaney, Jay E. Mallette, Philip E. Marsh, Ernest L. Martin, James A. Mattison, William A. Coventry, Andrew L. Coyle, Ernest Crockett, Harriet P. Cutter, Walter den Bleyker, Andrew J. Detwiler, Louise M. Dithridge, James A. Durrent, Byron C. Eades, Samuel R. Eaton, Thomas Flournoy, Jed B. Freund, Burt F. Green, David S. Grim, George T. Harding, Jr., Louis M. Henderson, James Henry, Jr., John A. Miller, Charles M. Mooney, John H. F. Mullett, John F. Murphy, Edwin H. Musson, Frank W. Nagler, Andrew Nelson, William W. Newcomb, Anna Odell, George R. Pray, Julia K. Qua, Albert Rowland, Leal K. Slote, Shirley H. Smith, Alice G. Snyder, Samuel B. Stegeman, Herbert W. Stoughton, Pringle G. Tait, Erwin H. Taylor, Charles E. Tompkins, Lawrence N. Upjohn, Bert K. Van Naten, Paul Van Riper, Walford A. von Zellen, Edward G. Weadock, Freeman E. Wilson.

During Commencement week various classes held reunions and attended clinics conducted by members of the medical and surgical staffs of the University Hospital. The principal meeting was that of the Alumni Association, which was addressed at length by Doctor A. M. Phelps (1873), of New York, and Doctor Frederick G. Novy (1891), of Ann Arbor. The latter's address is published in full in this issue, and an abstract of the former's will follow in close succession. Among other speakers at the meeting were Doctor L. S. Pilcher (1866), of Brooklyn, and Doctor R. C. Kedzie, of Lansing, the only surviving member of the first class (1851) graduated from the medical department. "There were six of us, and we all stood in line," remarked the venerable doctor in the course of reminiscences of early college days at Ann Arbor. W. J. Cocker, of Adrian, was elected president of the Association for the ensuing year. Doctor and Mrs. V. C. Vaughan tendered a reception to the medical members in the evening.

THE PATH OF LEAST RESISTANCE.

Doctor Landon Carter Gray, of New York, died of chronic nephritis with cardiac complications at his home in that city on the 8th ultimo, after a long illness. He was born April 3, 1850, New York being his native city. Young Gray spent his boyhood days at his father's Staten Island home, where he received his early education, afterward completing his literary course at Columbia College and at the University of Heidelberg. Graduating from the Bellevue Hospital Medical College in 1873, he immediately began practice in Brooklyn as assistant to an eminent surgeon, but not finding surgery very congenial he returned to New York within a year or two and engaged in general practice. After spending two years in the metropolis, he again removed to Brooklyn, where he remained until 1886, early giving particular attention to diseases of the nervous system. In this specialty he eventually became not only an authority but an author as well, having written a treatise on mental and nervous diseases which has sustained several editions and ranks as an authoritative contribution to that department of medicine. Besides this crowning literary effort of his life he wrote numerous valuable articles on neurologic and psychiatric subjects. He bore titles galore, among them being the professorship of neurology in the Long Island Hospital College, and first professor of nervous and mental diseases in the New York Polyclinic, of which institution he was one of the founders. As a neurologist he ranked among the best, and that branch has been enriched by his original work. As a teacher he was practical. As a medico-legal expert he won distinction and commanded respect. As a man he was many-sided, but truth and honesty were paramount characteristics. He was a loyal friend, a generous foe, and bold unto audacity. He once remarked to a friend: "I always take the odd chance. In all my life I never walked nor crawled; I have plunged."

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Doctor Fessenden Nott Otis, of New York, the specialist in diseases of the genito-urinary system and syphilis, died at New Orleans, May 24, aged seventy-five years. He was born in Ballston Spa, New York, March 6, 1825, and received his literary education at Union College. In 1852 he obtained the degree of Doctor of Medicine from the New York Medical College, and in 1876 an honorary M. D. was conferred on him by the College of Physicians and Surgeons of New York. He spent one year in professional work at Blackwell's Island Hospital and then shifted to the surgeoncy of steamships, in which capacity he served a number of years with different companies, afterward becoming superintending surgeon on shore for the Pacific Mail Company. Later he engaged as police surgeon, and in time was elevated to the presidency of the medical board of the police department, which office he held several years. Embarking in independent practice, he early directed attention to diseases peculiar to the genito-urinary system, and in 1862 was called to the College of Physicians and Surgeons to lecture on this special branch, the scope of his work being enlarged in 1871 by the acquisition of the clinical professorship in this particular field. As surgeon, teacher, author and inventor he contributed much to advance the specialty he chose for his life-work. About ten years ago the doctor retired from practiee and severed his collegiate, hospital, and dispensary connection, having elected a long tour of the orient for rest. He dearly loved the profession of medicine, and even while in New Orleans often attended clinical lectures at Charity Hospital.

MINOR INTELLIGENCE.

Doctor William Braisted, of the United States Navy, has been decorated with the Order of Bolivar by President Castro for rendering medical service to the Venezuelan soldiers who were wounded in the capture of Puerto Cabello last fall. He is surgeon on the *Detroit*.

Doctor Georges Apostoli, the originator of the Apostoli method of treating uterine fibroids by electrolysis, recently died in Paris, aged fifty-three years. As author and editor the doctor earnestly disseminated the principles of the electrolytic method of treatment in paper and edition.

Evanston Hospital is to be the recipient of a gift of $50,000 from Mrs. Herman D. Cable, $25,000 of which will be devoted to the erection of the Herman D. Cable Memorial Building and the balance to the maintenance of a children's ward therein as a memorial to the daughter of the donor—Anita Hutchins Cable Ward.

Doctor Studt, the Prussian minister of education, has recently been empowered by Emperor William to henceforth prohibit the employment of Latin in all diplomas conferring university and faculty degrees. The advisability of encouraging a "more general use of the German tongue" is assigned as the reason for instituting the linguistic change.

The trained nurses comprised in the alumnæ of the training schools for nurses of the United States and Canada, recently held their third annual convention in New York City, under the presidency of Mrs. Hunter Rodd. About two hundred delegates were welcomed in an address by Mrs. Cadwalader Jones, and the sessions were continued three days.

There are 35,836 medical practioners in Great Britain, according to the "Medical Register" for 1900. Last year the number was given as 35,057. During the past ten years the increase has been 7,488. The accuracy of the present work is called in question, however, and the criticism made that the names of many physicians now practicing in the elysian fields of paradise still appear on the roll.

The Roentgen Society of the United States is a recently organized X-ray guild composed of physicians, surgeons, dentists, and radiographers, the first regular meeting of which will be held in New York in December of this year. Doctor Heber Robarts, of Saint Louis, is president; J. Rudis Jicinsky, of Cedar Rapids, Iowa, is the secretary, and the *American X-Ray Journal*, of Saint Louis is the official organ.

The divine injunction has been fulfilled with a vengeance by a French Canadian residing in Rhode Island. He has been married three times and forty-one children have blessed the nuptial unions, several pairs of twins, and triplets galore being incidents in the replenishing process. With the exception of five, all the children are living, and many of them, as well as some of the grandchildren, have families and troubles of their own.

At the recent annual meeting of the Ann Arbor Medical Club the following officers were elected for the ensuing year: President, Doctor James R. Arneill; vicepresident, Doctor James R. Breakey; secretary and treasurer, Doctor John William Keating. Doctor C. B. Burr, of Flint, contributed an admirable paper entitled "Thoughts on Prophylaxis and Treatment of Insanity," which elicited considerable discussion.

The American Proctological Society elected the following officers at its annual meeting held in Washington, May 6, 1900: President, Doctor James P. Tuttle, of New York; vicepresident, Doctor Thomas C. Martin, of Cleveland; secretary, Doctor William M. Beach, of Pittsburgh; executive committe, Doctors S. T. Earle, Jr., of Baltimore, A. B. Cooke, of Nashville, and J. R. Pennington, of Chicago.

The third meeting of the PanAmerican Medical Congress will convene at Havana, Cuba, December 26, 1900, and continue its sessions four days. Originally this congress was to be held at Caracas, Venezuela, in December, 1899, but the date was afterward changed to December, 1900, in consequence of the disturbed political condition of that country. In view of the unsettled state of affairs the Venezuelan profession has requested that the meeting take place in some other country.

The American Dermatological Association elected the following officers at its annual meeting held in Washington last month: President, Doctor F. J. Shepherd, of Montreal; vicepresident, Doctor D. W. Montgomery, of San Francisco; secretary, Doctor F. H. Montgomery, of Chicago. The membership was augmented by the acquisition of Doctors C. J. White, of Boston, and O. H. Holder, of New York. Chicago was selected as the place at which the next meeting will be held, and June 1901 the time.

Doctor Tatsusaburo Yabe, of the Japanese navy, announces a reliable agency for producing artificial immunity against tuberculosis. While studying in the Pasteur Institute at Paris he demonstrated the worthlessness of Koch's tuberculin, and claims to have discovered in tubercle bacilli substances possessing bactericidal and antitoxic properties which confer immunity against the disease in healthy persons and effect a cure in phthisical subjects. The method of isolating the specific is not published.

Doctor Charles T. McClintock, of Detroit, had a vicepresidential honor conferred upon him by the American Academy of Medicine at its recent annual meeting in Atlantic City, June 2 and 4. The other vicepresidents are: Doctors C. M. McCulver, of Albany; Rosa Engell, of Chicago; and George G. Groff, of San Juan, Porto Rico. Doctor Samuel D. Risley, of Philadelphia, is the newly elected president; Doctor Charles McIntyre, of Easton, Pennsylvania, will officiate in the capacity of secretary and treasurer; and the assistant secretary, ship will be filled by Doctor Alexander R. Craig, of Columbia-Pennsylvania.

Australia has been experiencing an epidemic of the plague, nearly every seaport town and even many of the inland municipalities suffering invasion. In Sidney alone one hundred and forty-two cases and forty-nine deaths were reported prior to April 25. Sporadic cases have since been announced from several cities in this country. In "The Bubonic Plague," published in another department of this issue, Doctor Novy interestingly narrates the course of this disease across the ages and the ridiculous ideas that obtained vogue along the route concerning its etiology, notions, indeed, quite suggestive of the absurdity of modern conceptions regarding certain other diseases.

THE Washtenaw County Medical Society met at Ypsilanti on the 25th ultimo and listened to the annual address of the retiring president, Doctor George Dock. Cases were reported by various members and the following officers were elected: President, Doctor G. Carl Huber; vicepresident, Doctor Ellen B. Murray; secretary, Doctor Thomas Burr; treasurer, Doctor John A. Wessinger; censors, Doctors William F. Breakey, Conrad Georg, Sr., and Neil Gates.

THE American Therapeutic Society was organized in Washington May 1. The meeting was called by the Therapeutic Society of the District of Columbia, and the national association contemplates affiliating with the Congress of American Physicians and Surgeons which convenes triennially in Washington. The regular meetings of the new guild will be held annually in the same city, however, the date for the next one being May 7. In the meantime affairs will be conducted by the following officers: President, Doctor Horatio C. Wood, of Philadelphia; first vicepresident, Doctor Howard H. Barker, of Washington; second vicepresident, Doctor R. W. Wilcox, of New York; third vicepresident, Doctor E. H. Long, of Buffalo; secretary, Doctor Noble P. Barnes, of Washington; recorder, Doctor William M. Sprigg, of Washington; treasurer, Doctor John S. McLain, of Washington.

THE ninth annual meeting of the Association of Military Surgeons of the United States, was held in New York City, May 31–June 2, under the presidency of Doctor Charles H. Alden, of the Army Medical Corps. The Mexican army was represented at the meeting by Major Narciso del Rio, and the British army by Colonel-Surgeon W. McWatters. A resolution was adopted recognizing the eligibility of ex-surgeons of the civil war to membership. Both federals and confederates are contemplated in this action. The next meeting will be held at Saint Paul one year hence, and the following officers will have charge of affairs in the meantime: President, Brigadier-General A. J. Stone, of Minnesota; first vicepresident, Medical Inspector John G. Wise, of the District of Columbia; second vicepresident, Doctor J. F. Calef, of Connecticut; secretary, Colonel Charles Adams, of Illinois; treasurer, Lieutenant Herbert A. Arnold, of Pennsylvania.

RECENT PUBLICATIONS.

REVIEWS.

PROGRESSIVE MEDICINE—MARCH, 1900.*

IN the first volume of the series of "Progressive Medicine for 1900" we are greeted with a digest of the recent literature on the following subjects: the surgery of the head, neck, and chest; infectious diseases, including acute rheumatism, croupous pneumonia and influenza; the diseases of children; pathology; laryngology and rhinology; otology. The contributors are the same as for the corresponding volume of the series for 1899, with the exception of Frederick A. Packard, who substitutes for William Sydney Thayer on the second subject. This volume is in keeping with those of last year in every respect, and is well deserving of a large circulation.

*Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 404 pages, 36 engravings and a colored plate. Lea Brothers & Company, Philadelphia and New York. Issued quarterly. Price, $10.00 per year.

MATERIA MEDICA AND THERAPEUTICS.*

THIS manual, in addition to a comprehensive though condensed text on materia medica and therapeutics, has the merit of presenting in resume the related subjects of prescription writing, practical anesthesia, dietetics, and tables of drugs, poisons and antidotes, incompatibles, et cetera. It will also conveniently serve as a brief reference book.

*By William Schleif, Ph.G., M. D., Instructor in Pharmacy in the University of Pennsylvania. In one very handsome 12mo volume of 352 pages. Cloth, $1.50, net. Lea Brothers & Company, Philadelphia and New York.

CHRISTIAN SCIENCE.*

THE author of this book is not making a plea for Mrs. Eddy's teachings, happily, but, on the contrary, by exposing her infamous doctrines pleads for children and other helpless sick. Of the six chapters, all of which have appeared in print before, four treat of Christian science and the legal status of this cult, one of the intent and scope of medical legislation and one of the evolution of the apothecary. The articles constitute an able exposition of these subjects. Their statements have not been refuted and are therefore worthy of general and careful perusal.

*By William A. Purrington, one of the authors of "A System of Legal Medicine," et cetera. E. B. Treat & Company, New York.

INTERNATIONAL CLINICS—VOLUME IV: NINTH SERIES.*

THIS volume comprises thirty-seven clinical lectures embraced under the following heads: Drugs and Remedial Agents; Treatment; Medicine; Neurology; Surgery; Gynecology and Obstetrics; Ophthalmology; Laryngology and Pharyngology; Dermatology. The contributors are for the most part well-known authorities in their special lines. All the articles are deserving of special mention as they are brief, pithy and practical discussions of important subjects.

*By Professors and Lecturers in the leading medical colleges of the United States, Germany, Austria, France, Great Britain, and Canada. Edited by Judson Daland, M. D. (University of Pennsylvania), Philadelphia, Instructor in Clinical Medicine in the University of Pennsylvania, et cetera. J. B. Lippincott Company, Philadelphia, 1900.

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ORIGINAL CONTRIBUTIONS.

ADDRESSES.

MEDICAL EDUCATION.*

By AUSTIN W. ALVORD, M. D., Battle Creek, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

There are few subjects of so far-reaching importance before the general public today as medical education. It has to do with the life and health resources of the people. It bids fair to give shape and purpose to the physical and intellectual vigor of the nation. Developing by a slow growth in accordance with the needs of the people, it has already attained proportions that wield an influence of wondrous power. It is our duty to so guide this growth, checking it in some directions and encouraging it in others, that the best results may be wrought for humanity. It is surely within the province of the medical fraternity of this generation to do that for medical education which may never be accompolished hereafter, for now it is in that formative stage which easily yields to the shaping force.

It is well for us to turn aside from the bustling activities and conflicting interests of our daily lives and consider for a time that philosophical history and development of medical education which has changed the physician of two thousand years ago from an empiric charlatan to the broad status of leader in scientific work today. It is seldom that the human mind and heart has attained such wondrous victory over the darkness and clouds of ignorance and superstition as is evidenced in our chosen profession. The origin of our art was in the necessities of the people and when the eastern magi and the seers of Palestine made their pretensions to the healing art, we doubt not their efforts arose from an earnest desire to relieve human suffering, a sentiment that has been the keynote to success in the study and practice of medicine from their day to the present time. And while I bring before you a brief synopsis of the growth of our fraternity from its humblest beginnings to the high plane on which you now stand, and cast a hasty glance at still greater demands we make for the future, I will take heart and believe you will not tire of the subject, for our interests are one. I stand in the midst of friends—of brethern—of those who, for many years have been my companions in toil most arduous, moved by the same impulses, agitated by the same fears, excited by the same hopes, elated by the same successes as myself. With the associations of a third of a century clustering thickly around me, on this, our common hearth, I feel that I am at home, and can speak, as well as breathe, without restraint. To the initiated, medicine is something more than a profession, it is a world within itself. It has its history, its philosophy, its politics, its literature, of which the world knows nothing; it has its organizations and institutions, its ranks and grades of honor. In ethics, traditions and superstitions, it is older than the church; in use before the civil law, it recognizes no arbitrary enactments, and yet it is law-abiding. Nature is its only court of equity, and who of us shall forget its everlasting charities, its moving scenes of joy and sadness, its benignant, ennobling, liberalizing influences, which few beyond our own circle can properly appreciate, and none can understand so well as ourselves.

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*President's address before the Michigan State Medical Society at the Mackinac meeting.

Our profession has ever been drawn together by its hallowed associations. The Druids of early Gaul and Britain, the asclepiades of Greece, the priests of ancient Egypt, the lamas of Central Asia, the Vaidhyas of India, the fraternities of the middle ages, the societies and colleges of today, are all in proof of this. HERODOTUS informs us that the Egyptian priests were a class numerous, and influential, receiving for their support about one-third of the entire income of the nation. They were usually skilled in medicine, each physician applying himself to one disease only, some for the eyes, some for the head, others for the teeth, others for parts about the belly, and others for internal diseases. Of this class were the embalmers, whose occupation rendered them familiar with the internal structure of the body and furnished them with useful insight into the nature, causes and results of diseased action.

The first school for teaching the art of medicine among the Greeks, was established by PYTHAGORAS, a full century before the time of PLATO. He had learned the art in Egypt, and conceived the idea that it would be better to establish a school of philosophy, which should include medicine, rather than teach by single tutilage. This school was established at Crotona, and gave forth to the world the ablest physicians yet known, and they were in great demand. There is little doubt that the temples of ÆSCULAPIUS were the direct outgrowth of the Crotona school.

In the year 460 before CHRIST there was born a man by the name of HIPPOCRATES, who was destined to leave his mark on the world's history as the first clinical teacher of medicine. For more than a century the schools had taught medicine as a theory of philosophy. He sought to teach it as an art. What others had shown in the abstract he placed in the practical concrete. The great among mankind are not those who set the first examples, but rather those who detect the rising spirit of the age in which they live; who first give expression and embodiment to the wisdom, feelings, aspirations, customs, or hitherto undivulged opinions of his time. Such a man was HIPPOCRATES. He lived in an age of progress. The earliest historians, the ablest dramatists, the profoundest philosphers, the wisest legislators, the ablest generals and the greatest artists, sculptors and painters of Greece were contemporary with him. Among the men of his day no brighter light than he shone forth, and ultimately at the ripe age of eighty-five, full of honors he was gathered to his fathers. He left behind him works on medical, surgical and hygenic subjects which hold an honored place in the history of the art. HIPPOCRATES was fortunate in his historian and commentator, GALEN, who held a high place among his disciples.

The first school of medicine in Rome was established by ASCLEPIADES, a native of Prussa, in Bithnya, who was a personal friend of CICERO and had been taught in the school founded by HIPPOCRATES. APULEINS declares him to have been the greatest physician, HIPPOCRATES alone excepted. CELSUS says of him that his claim to our respect appears to lie in his rejection of the complex, violent and perturbing remedies in use before his day and substituting therefor such as were simple and grateful to the sick, and in looking on his art as useful only in so far as it served to alleviate human suffering. Of high character, he became a skillful and compassionate practitioner, cheering and amusing the sick as became a friend. He lived to old age.

Time would fail us to enumerate the many schools of medicine that followed these among the Greeks and Romans, or mark the struggles of faithful workers in our profession during the middle ages. Suffice it to say that the seed of clinical medicine once sown was never lost, but through the long weary years of superstitious taint and ignorant charlatanism, it shone forth as a beacon light in medical history. Thus stood medical education at the beginning of the seventeenth century. There was little of history to learn. Science was yet unborn; philosophy was a tangled web of disputatious metaphysics, and art in medicine and surgery were exceedingly crude. True, HARVEY had already discovered the circulation of the blood, and AMBROSE PARI had taught the surgeon to tie the bleeding artery instead of burning it with a hot iron, but surgical instruments then in use were most barbaric instruments of torture. The medical schools of Europe led a starveling existence for centuries, and America had no schools for two centuries later.

I have brought you along over this path of medical history thus far to remind you of the foundation on which the system of medical education now prevalent with us was built, but it is chiefly with our own state and country that we have to do.

It is now scarcely a hundred years since the first medical college was established in America; it was patterned after English schools, and yet modified so as to meet the wants of a new country. Its requirements were not so severe, the length of its curriculum was lessened, and the number of its degrees dropped to one in place of three.

During the first and second centuries of American settlement, physicians were educated by reading medicine with physicians already in practice, for two or three years, and then submitting to an examination by a committee from some medical society in order to obtain a license to practice. Many excellent physicians were made in this way. The student learned practical work under the eye of a practical man, but under this system the instructor was rarely an expert in science, and the student lost much that would have been of service. In the year 1800 there were three medical schools in America, but poorly sustained; previous to this time if the son of an American colonist wanted an education in a medical school he went to Europe for it. Many did go and returned bright, earnest physicians, whose services were in great demand. In the early part of the nineteenth century there was still a great scarcity of medical schools, but in the last half they multiplied with great rapidity until at the present time there are one hundred and fifty-six chartered medical schools in the United States authorized to grant diplomas. In the race to obtain students for so large a number of schools the standard became exceedingly low. Two years of six months each were sufficient to graduate an ordinary student with but little previous training. Soon, however, the better schools formed an association with greater requirements which gradually extended both in time and quality of work, until now a four years' course is almost universally demanded with courses ranging from six to nine months in length, also requiring a preliminary education equal to graduation from a high school.

A careful examination of the catalogues of Harvard, Michigan, Pennsylvania, Johns Hopkins and the College of Physicians and Surgeons of New York, shows that a large share of the work of the first and second years in medicine are in the laboratories, and that it is in the nature of work preliminary to the study of medicine proper. This work could be prosecuted more successfully in the literary colleges and ought to be mandatory, while their transfer would give more room for the ever increasing work of our medical schools, both in laboratory and lecture room as well as in the clinic.

More attention ought to be paid to anatomy. It is the groundwork of a thorough knowledge of medicine or surgery. Students should be required to dissect every part at least twice. It would be well for them to gain some preliminary knowledge of this work by dissecting a dog or cat before attempting work on the human body. It is a notable fact that the first dissection is of little value. More clinical instruction should be given all students before graduation. More careful and prolonged drill in diseases of the chest and abdomen is sadly needed to aid in the correct diagnosis. Numbers of people die every year from consumption, smallpox, diphtheria and scarlet fever, because the early diagnosis is faulty. It is not sufficient to be familiar with the theory and pass a good examination. They must have the practical knowledge that comes from actual and oft-repeated examinations of the patient. In this way alone can good diagnosticians be made. For myself I am ready to recommend that every student should be required to serve at least one year in the office of a reputable practitioner before being allowed to begin work for himself. Is there any good reason why this usual requirement of pharmacy and normal schools should not be extended to medical schools? I am not prepared to recommend any extension of the work done in the best medical colleges on orthopedics, insanity, surgery of the eye, nervous diseases and advanced bacteriology, as much as they are needed, for they are properly postgraduate work, but I do desire to recommend to your careful thought a subject not usually taught in medical schools, but which appeals to my better judgment with convincing force as a greatly needed addition to our present curriculum. I refer to psychology: The practitioner of only limited experience has already learned that he was sent forth from the schools to practice with only limited qualifications as he attempts to treat some neurasthenic greatly to his own discomfiture.

I have been permitted to see the advance sheets of a paper on "Psychology an Esential Factor in Medical Education," read before the American Academy of Medicine by Professor W. J **Herdman**, of the University of Michigan, in which the doctor discusses most ably the relation existing between mind and body, their interdependent unity and also some consideration of psychophysiology and psychopathology. There will not be a single case among all those you will treat in the next twelve months to which these principles do not apply, and yet who hears them discussed to any extent in the class room? It is absolutely necessary for the medical man to be taught much concerning the laws of mind and mental science or he will find himself sadly in the lurch in his race for recognition, but it is more important for the patient that his physician shall be a skilled psychologist in order that he may be able to muster into his service all those mental activities that make for or against his recovery. To be able to recognize the mental attitude of the patient and with adroitness and candor to mould and direct his thought and action so as to bring them into harmony with the physical forces employed, is a victory over disease, of the very highest order. Let us demand some attention to this subject, pregnant with such possibilities, from our medical colleges; then we may hope that the sufferings of the innocents in our public schools will be lessened, their physical and mental wrongs righted, the public schools themselves prove a means of true education—a leading out of the mind in paths of health—rather than prove a stepping stone to the asylum.

It is earnestly to be hoped that the State Medical Boards now appointed under medical laws in thirty-four different States of the Union, may prove a real stimulus to higher medical education. I am sure the gentlemen composing these boards are most earnest in their desire to aid in elevating the standard in medicine. If their leadership is wise, great results will follow, the weaker medical schools will be obliged to raise their standard or fall behind in the race, the minimum standard will be a fixed measure and none can pass below. The diploma of no school should be considered which does not require an initiatory standard equal to graduation from a first-class high school. And yet this is not sufficient. Human life is of too great importance to be entrusted to the care of any but skilled practitioners. In order to be able successfully to cope with the enormous problems facing the profession for solution, every man entering upon the study of medicine should be already a mental athelete, made so by a thorough drill in a literary college. One by one the medical colleges are recognizing this need and soon all the better schools will demand such a standard for entrance. Already Johns Hopkins requires a degree in arts, literature or science before admission to its medical school. Harvard will require the same after September of this year. After 1901 the Western Reserve University of Cleveland will require the completion of the junior year in a recognized literary college for admission to its medical department, and after 1903 the University of Chicago and the Univerity of Minnesota will require the same. In view of the fact that each year brings new demands upon the profession, requiring us to be conversant with new facts and principles that were entirely unknown a year previous, it is most encouraging to see men coming to the front, trained in the lore of the colleges and equipped for their profession as only time and labor under the best masters can prepare them.

The essentials for the best medical education are: (1) a thorough literary training; (2) abundant time and labor in the laboratories, of which there should be at least thirteen as shown in that admirable address of PRESIDENT KEEN at Atlantic City, last month; (3) the personal influence of the individual teacher in the lecture room, in the quiz, on the street, and in the home, that will enable the student to fix his standard high, and give him the enthusiasm to reach it, and with all these he should be taught transcendentalism, the usefulness of the art. He should be taught to grasp the progressive spirit of science, that what is truth today may be disproved tomorrow, and that he must keep abreast of this knowledge. The college at best is but a master who opens the door to a world of study, a world of labor.

MEMOIRS.

THE ETIOLOGY OF TUBERCULOSIS.*

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LOCAL, state, national and international associations are being organized for the study and prevention of tuberculosis.

The belief that the disease in its early stages is curable, that it is communicable and therefore preventable, is now all but universal. We are entering on a crusade against consumption. Individuals, cities, and states are appealed to for aid, and are beginning to respond. Sanatoria are being built, books and pamphlets published, the public are becoming interested—the campaign is on.

Success in warfare is often conditioned on a knowledge of the enemies' whereabouts, resources and methods. So here, our success in combating tuberculosis will be materially influenced by what we may know of the cause and course of the disease.

As it appears to me we are warranted in the statement that the exciting agent in all tubercular processes is the tubercle germ, discovered by KOCH in 1882. Without the bacillus there is no tuberculosis.

*Read before the MICHIGAN STATE MEDICAL SOCIETY at the Mackinac meeting.

It has been proven beyond reasonable doubt that the germs are rarely transmitted from the mother to the fetus. Then these germs must come from without. What are the avenues of infection? The usual reply is, the lungs, the alimentary canal, and exceptionally the skin. The sources of infection? Sputum containing tubercle germs, tubercular milk and meat.

I need not enumerate the well-known arguments for the correctness of these answers. While these answers are the best that can be given today, they are not entirely satisfactory; they do not explain all the conditions; they may be true only in part.

It is usually held that tubercular sputum dried, pulverized, and floating in the air, is the most important source of infection. The attempt to infect guinea-pigs, animals I would say a hundred times as susceptible to the inoculated germ as man is, by making them breathe air suspensious of dried tubercle germs has usually failed, after being tried by many investigators. It should be said that in CORNET's latest experiments when he placed the pulverized sputum on rugs and kept the pigs on these rugs for some days, the most of them acquired the disease. In the last ten years I have had a general oversight over the postmortems on between ten and fifteen thousand guinea-pigs. For the most part these pigs were reared near a dusty, unswept street, in a large city, where the windows are open nearly all the year, yet I have never seen a guinea-pig with a self-acquired tuberculosis.

FLÜGGE, as the result of a long series of experiments made by himself and his pupils during the last two years, concludes that the danger of infection from dried tubercular sputum is small. He contends that the chief danger is in the fine droplets of sputum forcibly thrown out in coughing, speaking, laughing, and sneezing. By placing a little of a culture of the colored germ, prodigiosus, in the mouth of a person, and then having him speak, sneeze, laugh, et cetera, he could infect plates placed several yards away.

CORNET has shown that among street-sweepers, who follow the business for many years, tuberculosis is less common than among many other classes. This exemption, despite the constant breathing of dust and germs, is a striking proof of the saving power of an active outdoor life.

Why should inhaled tubercle germs usually lodge in the apex, and in one apex rather than the other? It is more than questionable if the tubercle germ or any other is ever breathed into the alveoli; the long tortuous, moisture-lined passage almost precludes this. The air in the aveolus is changed more by diffusion than by displacement; there is no current of air in and out of an alveolus, and yet here is where we find the beginning of the disease in the lung proper.

To meet these facts some argue that the germ does not commonly produce the disease at the place of entrance; the usual avenues of infection are the upper air passages, the nose, tonsil, pharynx, and larynx; that the germs lodge here, penetrate the mucous membrane and find lodgement in some lymphatic gland; this then becomes a focus from which any part of the body may be infected. Some such supposition is necessary to furnish even a working hypothesis by which to explain localized tuberculosis, such as we find in glands, bones, joints, the genito-urinary apparatus, et cetera.

In guinea-pigs and rabbits it has been shown that infection may take place if tubercular sputum is rubbed into slight abrasions or scratches of the skin, or into the apparently uninjured mucous membrane of the mouth, nose, eyes, vagina, or rectum. In such experiments the skin or mucous membrane will often remain free from the disease while the nearest gland will become tubercular.

We should not lose sight of the fact that in these experimental results we are using animals that are many, many times as susceptible to the inoculated disease as man is. Because we have tubercular milk and the feeding of this in large quantities to guinea-pigs will often produce the disease, it does not follow that tubercular milk is a *great* source of danger to man: the presumption is strong, to be sure, but it is presumption, not proof.

DOCTOR AVISON, a physician who has made extensive observations and studies of the disease in Korea, tells me that while the natives use cattle as beasts of burden, they never use the milk, yet tuberculosis, particularly of the bones and joints, is frightfully prevalent.

For the latency of tuberculosis, we have as yet no satisfactory explanation. Why is it that the disease may lie quiescent for years or, it may be, a lifetime, in some gland, bone or joint? Immunity, such as we know, does not fit the facts. Were the body to become immunized the disease would disappear from this focus. We cannot believe that the germs as we know them remain alive but dormant all these years. We may suppose that the germs slowly reproduce themselves and as slowly die, neither gaining nor losing in numbers, and that this continues year by year. But this supposition does violence to all that we know of germ life.

In order to explain this and other facts of the disease, many observers have argued that there must be an undiscovered spore stage of the tubercle germ; that this spore, consistent with what we know to be true of other spores, can lie dormant for years. Some have argued that all infection is through this hypothetical spore.

Whatever be the explanation, the facts seem to warrant the statement that the danger of infection is in proportion to the number of germs, and the frequency with which they are taken in. In general, it may be said there is little or no danger in visiting a consumptive, whereas there may be considerable danger in living with one.

BLOS, of Heidelberg, says that "market milk as such cannot be made to infect guinea-pigs," and that "milk actually infectious is rendered innocuous if diluted from forty to one hundred times." We have experimental evidence along this line with other disease germs. It has been shown that several thousand pus germs could be injected into the peritoneal cavity of rabbits without the production of peritonitis, but if large numbers, a half million or more, were introduced, the disease always developed. A number of observers have claimed of late that the tubercle germ had other forms, and possibly another life history than that with which we are familiar.

HUEPPE, professor of hygiene in the University of Prague, says: "I have arrived at the definite opinion that the tubercle bacillus is the parasitic growth form of a pleomorphic mould and is not a true bacterium at all, but in respect to its morphology is closely related to the ray-fungus."

The ray-fungus, actinomyces, causing lumpy-jaw, in one stage of its life history lives on the grain of wheat, barley, and the like. Cattle eating the grains are infected and the disease results. The disease can apparently be transmitted from animal to animal, and so is, as occasion demands, a parasite growing in the animal body, or again a saprophyte living on plants.

In form we find in one stage of growth a round coccus-like organism, again long bacilli-like threads, and still again the peculiar rays or club-shape forms which give it its name.

Blos, in an article published last year, tries to show that practically all the infection in tuberculosis takes place in childhood, and that practically all children are infected. This is essentially the old theory of scrofula and tuberculosis. Except for children he holds that inhaling infected air or drinking infected milk has little or nothing to do with the disease. His conclusions were largely influenced by the discoveries of Kelsch and Volland. The latter, examining twenty-five hundred Swiss children between the ages of seven and nine years, found indolent, enlarged, multiple, cervical glands in ninety-six per cent. of those examined. He holds that these are all tubercular. As the children grow older, in the larger number the glands return to normal, the disease is self-limited. In some suppuration occurs and both gland and tubercle germs are destroyed, while in a certain number of cases the enlarged glands persist, and these are the persons who, in early adult life, or whenever resistance is sufficiently lowered, develop the active form of the disease. In confirmation of this view Volland says that some enlargement of the cervical glands is found in nearly all cases of pulmonary tuberculosis.

Whether we acquire the germs in childhood or just before the outbreak of the disease.

Whether it be dry germs or moist ones.

Be there one or several forms of the germ.

Be the entrance of the germs wherever it may.

Whatever our explanation of latency, whatever our explanation of the distribution of the disease in the body, the essential facts remain. We acquire the germs from without, and for the most part from the air we breathe and the food we eat and drink.

But there is more to be said: only a portion of those exposed to the germs acquire the disease; therefore, the statement is justified that without predisposition there is no tuberculosis.

The number of those who are satisfied with the statement that the tubercle germ is the sole and sufficient cause of tuberculosis, the pure infectionists, grows less each year.

That infection alone cannot explain the occurrence and distribution of the disease appears to me to be evident from such facts as the following:

It is notoriously a family disease, often appearing at about the same age in the different members of the family. Until within the last few years we felt sure that, the disease once having entered the family, exposure to the germ was constant. Yet it often happened that the children of that family lived in apparent health until as one by one they reached a certain age they succumbed to the disease.

In the first quarter of the century the death rate from consumption in the city of New York was approximately twenty-five per cent. of the total mortality. In 1886, before the discovery of the tubercle germ could have had any appreciable influence, the death rate from all tubercular diseases was 4.42 per cent. In 1897 it had fallen to 2.85 per cent.

It may be said that medical statistics can prove anything and are not reliable, but I do not believe that the criticism will hold in these cases. If there is one thing in death certificates that is not likely to be wrong, it is the statement "died from consumption."

According to the Registrar General, the death rate from consumption in England and Wales was in 1838 over thirty-eight per ten thousand of population. In 1895 it was fourteen.

Note that during this period of fifty-seven years the population had more than doubled, while the facilities for travel and commingling of sick and well had been at least quadrupled; that during the larger part of this time no attention whatever had been given to the thought of contagion, no isolation, no destruction of sputum, or any such precaution; that despite the fact that the possibilities for infection had been increased many fold, the disease had decreased two-thirds. A writer quoting these statistics remarks that "if phthisis diminish at the same rate during another thirty years, it will have entirely disappeared by the end of that period."

What explanation can be offered for this decrease? I would say better food, cheap window glass, sewer pipe.

It has been suggested of late that the race problem in our southern states would be solved not by legislation, but with the extermination of the negro by tuberculosis. Thirty years ago the disease was rare among them. In that short time it would appear that their changed conditions of life have produced a predisposition to the disease that is most remarkable. Formerly they lived for the most part in the country; were usually well fed and clothed, their cabins were as a rule clean and not overcrowded, they worked hard and were happy. Now they congregate in the towns and villages, usually living in much overcrowded, poorly heated and lighted houses. The food supply is often irregular, gormandizing today and hungry tomorrow. Envy, discontent and worry often depress. The tubercle germ finds its wonted soil.

As yet we have no satisfactory explanation for the geographical distribution of the disease. Climates the most diverse favor or hinder the disease as it may be.

Try to find an explanation for the relative immunity to the disease noted in Egypt, Iceland and Colorado. Lack of opportunity for infection will not explain these facts. It appeared to me that there were enough of the germs distributed around Colorado Springs to infect the population of the entire earth, and yet the disease is rarely acquired there.

Looking at the all but universal distribution of the disease, occurring as it does in nearly all climates, among all races, and at all ages, one is inclined to believe that but two factors are necessary for its production—the germ and weakened, nonresisting tissues. But with closer study the thought comes that predisposition is something more than mere weakness. Gout, rheumatism and lukemia weaken an individual but instead of predisposing him to tuberculosis they confer relative immunity.

Some laboratory experiments seem to show that alcoholism with its attendant weakening of disease resistance in general, produces nevertheless some antagonism to tuberculosis. There does follow a few diseases, such as grippe and measles, marked susceptibility to the disease. But speaking broadly, we may say that the sick, the crippled, and the invalid are not noticably predisposed to tuberculosis.

In the laboratory we find the germ rather exacting in its food requirements, and I am inclined to believe that we will eventually find that some certain chemical constitution of tissue, a diathesis if you please, is essential in the production of tuberculosis; that back of the tubercle germ lies the essential cause of tuberculosis.

CHRONIC GASTRITIS.*

By J. B. WHINERY, M. D., Grand Rapids, Michigan.

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In the ordinary routine of practice there has been a tendency to loosely class almost all stomach disorders, regardless of whether they are functional or organic, under the head of dyspepsia.

In recent years much good work has been done in the way of diagnosis and in the more accurate classification of stomach diseases, and in the near future we may expect more exact work along this line.

At the present time we seem to be passing through a transitional period in regard to chronic gastritis and definite and distinct lines have not been drawn between this and various functional disorders.

In the last few years there has been a tendency to place many of the cases formerly regarded as chronic gastritis under the head of neuroses and often it is hard to distinguish between these two conditions.

The majority of cases do not come to autopsy and it is hard to tell whether the given symptoms arise from neuroses or chronic gastritis. But we should try to restrict the term to a quite constant clinical picture with changes from normal in the stomach contents, some loss of motility, and the commonly accepted view of the histological changes in the stomach wall, namely, mucoid degeneration and atrophy of the glands, small round-celled infiltration, changes in the muscular coat, and an increase of connective tissue.

It is hardly worth while to mention more than in a general way the causes of this trouble. By far the largest group of cases is due to errors in diet, excess in eating and drinking, poorly prepared food and irregularity of meals. The worry and hurry of modern life are responsible for many conditions leading to the disease. Secondarily chronic gastritis follows a number of constitutional diseases such as the anemias, cardiac disease, chronic kidney disease and tuberculosis. It also results from local conditions of cancer, ulcer, dilatation of the stomach and obstruction of the portal circulation.

According to Doctor Osler we may, in a general way, divide chronic gastritis into two groups. First, simple chronic gastritis, in which the stomach is usually enlarged, but there may not be many changes in the size or structure of the organ. It is covered with a tenacious mucous, and there are varying pathological changes in the mucosa and the submucosa. The second group is vastly different. There is a striking change from normal in the size of the stomach and almost complete atrophy of the secreting substance. With this condition we have either a thinning of the coats of the stomach—phthisis ventriculi—with or without an increase in the size or a marked thickening of the coats with great reduction in the capacity of the stomach, the so-called cirrhosis ventriculi. The history of chronic gastritis is that of a gradual onset, and the symptoms are are familiar to all of us, a fickle appetite, uneasiness after meals, fullness of the abdomen, coated tongue, belching of gas and a variable amount of pain on pressure. There may be some regurgitation of food—a mouthful or two—rarely a thorough emptying of the stomach. Constipation is the rule. There is often a languid feeling and a depressed mental state accompanied with various nervous phenomena. The digestion is usually delayed, and the lack of motor power is evidenced by the presence of food in the stomach many hours after a meal. The retention of food in the stomach not only favors fermentation and the production of gas and organic acids, but also acts as an irritant to the mucous membrane and increases the secretion of mucus.

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*Read before the Michigan State Medical Society at the Mackinac meeting.

After a test meal the presence of a tenacious mucous in the washings is quite a prominent feature. The amount may be so large as to interfere with emptying the stomach through the tube, and it may take considerable time with the aid of suction or stripping the tube to get the meal away.

The chemical findings vary a great deal. The amount of hydrochloric acid is usually diminished, but the quantity varies. It is essential to make three or four examinations before arriving at any conclusion regarding the hydrochloric acid. The ferments are usually present unless there is an extreme grade of the disease with atrophy. Marked thinning of the walls is usually accompanied by considerable atrophy and a lack of secretion.

The cases of cirrhosis are comparatively few, and have often been mistaken for cancer of the stomach, involving the whole organ. In such cases time alone will clear the matter up.

The history of the case is an important factor in the diagnosis. The family history is usually of slight importance, but there may be a history of weak stomach which is often due to a neurotic tendency. In getting the previous history of the patient, it is well to inquire into the general habits, the time taken for eating, mastication, the character of the food, and the relative quantity of solids and liquids. There is a common tendency to overfeeding. The amount of food needful after thirty is less than before, but the quantity is often increased. We should find out in regard to the use of alcohol. It is well to ascertain if the patient ever had gastric ulcer or vomiting of food taken the day before, suggesting dilatation. The present state of nutrition of the patient should be noted and a general physical examination made. On inspection the costal grooves and flank lines should be observed as well as any undue fullness or irregularity in the region of the stomach. It is well to note the transmitted movements from the aorta or the heart itself, and any peristaltic movement of the stomach.

Palpation should be practiced to detect carcinoma or ulcer. Clapotage is usually found out by striking with the tips of the fingers rather forcibly.

If necessary auscultation may be used to map out the size of the stomach and to get the deglutition murmur. When dilatation of the stomach is suspected, inflation should be used, and of the several methods probably the most convenient is the giving of a teaspoonful of tartaric acid in a small amount of water followed by the same amount of bicarbonate of sodium in water.

One will never regret systematically using the stomach tube in disease of the stomach and studying the washings and proceeding with the treatment according to the findings. By careful study in this way, many cases that have been regarded as gastritis will be classed among the neuroses.

Sometimes it is advisable to prepare for the test meal by first washing out the stomach the evening before it is given. The presence of fermenting food in the stomach interferes with secretion and prevents an accurate test. The EWALD test breakfast of a roll and glass of water, removing the contents in an hour, is the most practical. It is best to keep a record of the stomach findings. In brief one should note the kind of test meal, the time the contents were drawn off, whether the tube passed easily, the amount of contents, the odor, any unusual appearance, the degree of digestion of the food, the amount of mucus and the presence or absence of blood and pieces of the tumor.

The reaction on litmus paper is usually acid. Occasionally there is a neutral reaction in neurasthenia and malignant disease. It is rarely alkaline and when so is due to the swallowing of a large amount of saliva or regurgitation from the intestine.

The presence of free hydrochloric acid is determined by congo paper, tropaeolin paper, GÜNZBERG's or the resorcin test. The quantitative estimation of free hydrochloric may be carried out by titrating with the decinormal sodium-hydrate solution and using a one-half per cent. solution of dimethylamidoazobenzol in ninty-five per cent. of alcohol as an indicator, the end reaction being a yellowish cast to the color.

The total acidity which is made up of the free hydrochloric acid, the combined hydrochloric acid, the acid salts and the organic acids may be estimated with the sodium-hydrate solution using phenolphthalein as an indicator.

In practice the free hydrochloric and the total acidity are the important ones to determine, and as a rule it is not necessary to quantitatively estimate the combined hydrochloric, acid salts, and organic acids. It is important to test for lactic acid and UFFELMANN's test is sufficiently accurate for ordinary work. The small amount of lactic acid in bread is not sufficient to affect the value of this test. In a disordered digestion with stagnation of food, lactic acid is often present and the finding of it under these circumstances has no pathological significance. The right way of determining its presence is to wash the stomach out the night before giving a test meal and in this way to get rid of retained stomach contents.

Proteid digestion:—The presence of pepsin may be determined in a rough way by the action of the gastric juice on egg albumen, or better still by **Hammerschlag**'s method of using a one per cent. solution of albumen, making the test in Esbach's tubes, placing in a thermostat for an hour and allowing it to stand for twenty-four hours. There may be a small amount of hydrochloric acid and the normal amount of pepsin present.

Starch digestion may be roughly determined by Lugol's solution and the various stages between starch and maltose estimated by the color; starch giving a blue color, intermediate stages a purple, and maltose remaining unchanged.

The amount of sugar may be arrived at by Fehling's solution.

The test for milk ferment is not of much importance and its presence or absence really has not much bearing on the stomach question.

It is well to examine the contents microscopically, using both fresh and stained specimens, noting the presence of and kind of food; whether there is blood, changed or unchanged, yeast cells and bacteria. Yeast cells are often introduced by underdone bread. Often there are no bacteria present, and there seems to be only one form of much importance, and that is the **Oppler–Boas** bacillus—a large, long nonmotile germ frequently occurring in chains. This occurs in a small number of cases with the presence of lactic acid associated with cancer. If sarcinæ are present, one is inclined to think of dilatation with stagnation of the stomach contents. If cancer is suspected, a careful examination of pieces of tissue should be made.

In the way of differential diagnosis, as was mentioned before, it is often hard to definitely state whether there is an actual condition of gastritis present. We certainly meet with a large group of functional disorders due, it may be, to indiscretions or irregularity in diet, some slight deficiency of an element of digestion, lack of exercise or an inherited predisposition producing symptoms of gastric irritation, resembling very closely gastritis.

The same may be said with reference to the neuroses. The history of the case is often of great help, and the marked nervous phenomena will greatly aid in the diagnosis. Sudden chemical changes in the gastric contents incline one to suspect a nervous condition, while the presence of a large amount of mucus favors gastritis.

With ulcer, the three prominent symptoms of pain, vomiting of blood, and an excess of hydrochloric acid, will serve as points of differentiation.

In the case of cancer the patient usually gives no chronic history prior to the onset of the disease, and a gradual loss of motility with a gradual reduction in the hydrochloric acid and proteid digestion, the presence of lactic acid, an anemia of the secondary type, and the presence of a tumor, are sufficient to make the diagnosis.

Treatment.—When the condition is due to an error in diet, as is commonly the case, the first thing to do is to go over the patient's diet list and find out what he eats and what kinds of foods disagree with him. Find out the time and regularity of eating and the quantity of liquids taken. It will probably be best not to cut off too many things, unless at first it is thought necessary to keep the patient on an exclusive milk diet for a short time. Exclude hot breads, pastry, fats, usually potatoes, and always coarse vegetables. Cut down the liquids. Further than this one will have to suit the diet to the patient. If it is desired to give fat in some form, good butter or olive oil in a salad may meet the requirements.

It is often advisable to increase the number of meals to four or five a day, with a small amount of food at each meal. It is better to omit alcohol from the diet altogether. Regarding the use of drugs, gastric stimulants are often of value. Strychnia either by itself or in the form of tincture of nux vomica, gentian, columba, and condurango are representative drugs of this type. The question of giving hydrochloric acid and ferments arises. As there is usually subacidity, dilute hydrochloric acid in doses of fifteen to thirty drops, fifteen and thirty minutes after meals, is often of help. Pepsin is now considered of doubtful value, and should there be an atrophy of the glands a little pepsin is not of much use.

Pancreatin is probably a better ferment. Constipation is often troublesome, and may be relieved by arranging the diet and by giving a mild cathartic, such as cascara or rhubarb. There are many remedies for the fermentation and flatulence. Of course the first thing to do is to correct the diet. The dictum of Ewald, that the best stomachic of all is the stomach tube, has been proven true. Washing the stomach out every day, every other day, or once a week, as the case may require, is a great stimulant to normal glandular activity. Plain warm water, weak solutions of salt, boric acid, or sodium bicarbonate are commonly employed. Cases in which there is a large amount of mucus not affected by the above solutions demand the use of some astringent.

It is impossible within the limits of one short paper to more than touch upon the methods of treatment for chronic gastritis. Many cases respond very slowly and the resources of the physician will often be severely taxed. A change of air and scene will sometimes bring about a cure. The careful analysis of the case as a whole must never be lost sight of.

It is to be hoped the general practitioner will avail himself more frequently of the use of the stomach tube and the few simple tests indispensable to a rational diagnosis of stomach disorders, rather than prescribe at random with a chance of hitting upon a mixture that will help his patient.

SOME CAUSES OF APPENDICITIS.

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Next to the treatment of appendicitis, which is now fairly well defined, is the determination of the etiologic factors which shall indicate its prophylaxis. Without giving a routine description of the various causes usually assigned to this disease, it will be sufficient for the purposes of this paper to class them as either inherent in the appendix itself, or acting primarily through adjacent structures.

In the first place, the vermiform appendix is a rudimentary organ. That is, it lacks structural virility and has no well-developed function.

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By structural virility I mean the vitality which most healthy tissues possess and exercise in recovering from ordinary strain. This low vitality is due both to the large amount of lymphoid tissue entering into its composition and to the naturally defective circulatory arrangement. The appendix possesses at the same time great absorptive powers and poor nutritional facilities. In the male the blood supply is limited to a single branch derived from the ileo-colic artery, which passes up its length and frequently even to the end of the organ without giving off branches. In the female a small branch of the ovarian artery is supplied to it in the appendiculo-ovarian ligament, a fact which accounts for the disparity of the disease in the two sexes.

In the second place, the appendix, being a small, hollow viscus, when once the scene of catarrhal changes, is extremely liable to become strictured and to encourage further trouble. Foreign bodies of many kinds and concretions have been not infrequently found in operative cases, and yet that they are often incidents rather than causative agents examinations post mortem have shown. It is true that in some instances fecal concretions and foreign bodies effect traumatisms and pressure necrosis, but in the majority of cases before they have had the chance to act in either of these ways a catarrhal condition and hyperplasia have been set up. They add to the gravity of the situation, but are seldom primary causes of it.

The location of the appendix is also an important matter. It has been found to occupy various positions in the right iliac fossa, but its most fixed point is behind and to the left of the cecum, whence it is usually directed upward and backward toward the spleen. However, in whatever situation it may be, it is in danger. It may be kinked and bent upon itself, or stretched out between folds of intestine, between cecum and ilium, or subject to trauma from without. The various positions in which it may lie also determine the ease or difficulty with which it may discharge its contents.

Such are the natural disadvantages with which the appendix has to contend in its very makeup. The more dangerous factor, as it seems to me, from the standpoint of prophylaxis is the relation of this organ to the cecum. I do not refer to the crowding of the cecum with fecal matter, as a result of which the appendix might possibly become filled up or receive the nucleus of a body within its walls, for this is more imaginary than real. It is a matter of repeated observation that the cecum is rarely filled in this manner. What I wish to note more especially is the possible extension of a catarrhal inflammation from the cecum to the appendix itself and the subsequent invasion by more or less virulent germs. Whatever stage the disease may reach, the primary condition has been a catarrhal inflammation, and in the majority of cases it is my belief there has been a previous disturbance of the intestinal tract. Until very recently writers seemed to be loth to consider the effects of any intestinal affection save typhoid fever, but now the changes produced in the secretions, contents and circulation of the appendix by various acute diseases are freely recognized. We may be amused at the possible role which grape seeds were formerly thought to play in causing appendicitis, but I am convinced that in one case under my observation the greater part of a basket of grapes excited a latent pathological condition into a severe attack, and I have no doubt as to the effects of over-indulgence, indigestion and constipation in other instances.

Further than the doubt and care which these remarks suggest, nothing can now be said in the way of preventive treatment. It would be impossible to outline a diet by which appendicitis could be avoided, and perhaps useless to devise rules in general for the regulation of the bowels. It is important, however, it seems to me, that more stress be laid upon the primary causes that operate in producing this disease, instead of giving all of our attention to the consequences of them.

ISCHIO-RECTAL ABSCESS.*

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In discussing the subject of ischio-rectal abscess it will be my endeavor to emphasize the necessity of making an early diagnosis of the condition, and also the importance of not temporizing in its treatment.

Ischio-rectal abscess is found in patients of all ages, but it is in particular a disease of middle life, and occurs oftener in men than in women. It is more frequently present in those who, from some reason, are run down and not in health, as the result of long continued sickness, over-fatigue, intemperance, syphilis, et cetera.

There is a peculiar proneness in the fatty, loose areolar tissue which fills the ischio-rectal fossa, and the great mobility of the parts also predisposes to the development and rapid spread of purulent collections. If we stop to consider the anatomical structures involved, we can readily understand why we so often get an abscess of large size, and localized, before we can get external fluctuation, or the pus has found its way into the rectum. An exciting cause may often be traced, such as an injury, exposure to wet and cold, also straining at stool when the fecal mass was unusually hard. Often it comes from external fissures like mammary abscess, arising from chapped nipples.

In the majority of cases the formation of an acute ischio-rectal abscess is attended with some fever, and we find the constitutional disturbance out of all proportion to the local disease. The pain, which at all times is severe, is greatly increased by the act of defecation; frequently there is bladder irritability, strangury or retention of urine being quite common symptoms.

The abscess is most often situated on the lateral aspect of the anus, and it is a red, prominent, tense, shining swelling in which, in the course of a few days, fluctuation is distinctly felt upon examination.

The treatment of ischio-rectal abscess must differ according to the stage and intensity of the inflammation. In the earlier stages I like ice applied in a rubber bag moulded to the anal region. It gives the patient considerable relief and comfort, but after pus has formed there is only one proper treatment, and that is to freely incise the abscess, and with the finger break down all partitions, curette the abscess cavity, pack with iodoform gauze, and keep the patient quiet in bed, lightly repeating the packing daily, after the gauze has been removed and the cavity cleansed until the parts are healed from the bottom. If this incision is made early enough in abscesses which have originated outside the rectum, we may be able to prevent the formation of fistula, and in cases wherein we cannot stop the formation of an internal opening, or wherein such is already present, we may be able to limit to a great extent the burrowing of the pus, and its extension upwards underneath the mucous membrane.

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*Read before the Saginaw County Medical Society.

ALLINGHAM, in "Diseases of the Rectum," says: "If the patient will allow me to act in my own way, I can almost guarantee that no fistula shall result. The following is the method to be adopted: The patient must take an anesthetic, as the operation is very painful. I first lay the abscess outside the anus, open from end to end and from behind forwards, that is, in the direction from the coccyx to the perineum. I then introduce my forefinger into the abscess and break down any secondary cavities or loculi, carrying my finger up the side of the rectum as far as the abscess goes, probably under the sphincter muscles so that one large sac remains. Should there be burrowing outwards, I make an icision into the buttock deeply at right angles to the first. I then syringe out the cavity and carefully fill it with wool soaked in carbolic oil, one in ten or twelve. This I leave in for a day or two, then take it out and examine the cavity, and dress again in the same manner; but in addition I now use, if I think it necessary, one or more drainage tubes. In a remarkably short time these patients recover, the sphincters have not been divided, and the patient thererefore escapes the risk of incontinence of feces or flatus, which sometimes occurs when both the sphincters are incised."

In my opinion the important part of the above treatment of DOCTOR ALLINGHAM is the free incision and the breaking down of the partitions of the several loculi into one cavity. When this has been thoroughly done, and the cavity dusted with iodoform and packed with sterilized gauze, and a pad applied held in place by a T-bandage, we will get as good if not better results than when we use the dressing of carbolized oil.

At times an ischio-rectal abscess does not run such an acute course, but a chronic or cold abscess instead is formed. In strumous individuals the cold abscess is mostly found, and is unattended by pain or uneasiness of any kind.

The local treatment must be similar to that just given, only the abscess cavity should be syringed out daily with a fifty per cent. solution of per oxide of hydrogen, and then packed lightly with gauze soaked in a mixture made of two drams iodoform, three drams campho-phenique, and eight ounces bovinine.

The general treatment should consist of cod-liver oil, strychnia sulphate, sun light, and pure air.

We must not forget when making our diagnosis of rectal abscess, to bear in mind that suppuration, symptomatic of other diseased structures, is sometimes present in this locality. For instance, in urinary abscess, and in collections of pus in the female generative organs, this is quite frequently the case. We also know that we may have an abscess pointing beside the rectum, when it is connected with disease of the bones of the pelvis.

The point I wish to make in the treatment of ischio-rectal abscess is the importance of having our patients under general anesthesia, of making free incisions, of breaking down all the partitions, of thoroughly curetting the abscess cavity and of carefully watching and dressing the wound until it is completely healed from the bottom, thus avoiding the occurrence of a fistula.

The rectal surgeon sees many cases of rectal fistula, which would not have occurred if the ischio-rectal abscess had had the proper surgical treatment. The general practitioner makes a mistake in waiting too long, and using poultices in his cases of ischio-rectal abscess, and then making only a small opening in the abscess, thus giving his patient only temporary comfort, but not a cure.

During the last fourteen months I have had seven patients with rectal fistula, the result of imperfect treatment of ischio-rectal abscess by their physicians. These cases being so similar, I will only give the history of one.

Mr. G., who had suffered from internal hemorrhoids and chronic constipation for years, had an abscess develop in the ischio-rectal fossa. After having it poulticed for ten days, his family physician made a pin hole opening in it, and let the pus out. The after treatment consisted in washing the parts externally and then applying an ointment. After three months of this treatment there being no improvement in his condition, he called upon me, and an examination showed that the fistula communicated with the bowel.

In my opinion the general practitioner who has not had the experience, should not attempt to treat ischio-rectal abscess, for it is one of the conditions that requires the best judgment and treatment of the whole list of rectal diseases, and in every case wherein there is only a small opening made, and the patient allowed to go about his usual duties, there will be a rectal fistula as a result.

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THE MATERIA MEDICA OF PICHI.*

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History.—This drug has been used in the remotest times by the natives of Chili and the Argentine Republic, as a remedy for vesical affections accompained or caused by gravel or calculi. Doctor Ramirez, of Valparaiso, who practiced from 1865 to 1885 in the small towns and hamlets of Chili, had ample opportunity for studying the medicinal properties of Pichi. In an extensive monograph on this subject, he fully corroborated the claims of the natives. From thence on the drug rapidly gained the confidence of the leading practitioners and syphilologists of this country and Europe. To a Detroit man belongs the credit of first introducing this drug to the profession; he is no other, than Doctor Henry Rusby, who admirably described it in the Therapeutic Gazette of December 1885. Part of the information furnished therein he obtained from Doctor Ramirez, while traveling in Chili.

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*Read before the Wayne County (Detroit) Medical Society.

Botanical Description and Physical Properties.—Fabiana Imbricata Ruiz and Pav or Pichi (pronounce Pechée) in the Chilian Dialect, belongs to the natural order Solanaceæ, a class which also embraces capsicum, belladonna and tobacco. It is a habitat of the dry, sandy and rocky hilltops of Chili, Equador and the Argentine Republic, looking very conspicuous in its almost coniferous appearance. It is the sole vegetation of those mountainous regions. It reaches a height of from fifteen to eighteen feet. The bark is thin, somewhat corrugated, and adheres to the golden-yellow wood. The upper branchlets are so crowded together, as to form plume-like sprays. These branchlets are covered with violet leaves, which are broadly ovate, blunt or rather rarely pointed, thick, sessile and closely imbricated upon these branchlets. In length they vary between one and two lines. The base and margins of the leaves are whitish, caused by a covering of a resinous deposit. In fact all tender parts of the shrub are covered by this exudation, which is a striking peculiarity of this plant. The whole shrub contains more or less oleoresin, especially is this the case in the smaller branchlets and the bark, where a great amount of resinous deposit can be found; the latter creates an impervious shield against the escape of moisture. The oleoresin ranges in color between green and blue. Every second year the terminal branches bear a solitary flower, with a tubular, purplish-white corolla. The flowering season ends about June. The fruit is two-celled and two-valved, having four flat, oblong, brown seeds, covered with hard testæ. The parts employed in medicine are the stems, leafy branchlets and the leaves. The odor is terebinthinate and the taste peculiar, characteristic, somewhat pungent, bitter and aromatic.

Chemistry of Pichi.—The leaves and twigs of the plant yield a crystalline, fluorescent substance, almost analogous to aesculin, which was first obtained by Doctor Lyons. This crystalline body is supposed by Ludenbeck to be a glucoside. Another crystalline, neutral principle has been detected, which was presumed to constitute an alkaloid. Trimble and Schroeter, however, show that this alkaloid is merely a resin, having the formula of $C_{18}H_{31}O_2x$. The leaves also yield pavin and fraixin, two neutral principles; besides this, it also contains an essential oil, resin and extractive matter, which when burnt liberates an odor similar to India rubber. The resin is *the* active principle of the drug. It is insoluble in water, soluble in alcohol and to some extent in ether. The fluid extract of pichi made with strong alcohol deposits, on long standing, the fluorescent principle described above. It forms white, light crystals, of a bitter taste, turning blue on the addition of ammonia and assuming a rose color with acids.

To recapitulate, pichi contains—(1) Minute quantities of an alkaloid crystallizable, of a bitter taste and neutral reaction, forming salts with acids. For convenience I term this alkaloid fabianine or pichine. (2) A neutral principle, rich in carbon, insoluble in water, tasteless and inert. (3) A fluorescent body analogous with aesculin and classed among the glucosides. (4) A volatile oil. (5) A bitter resin having the formula of $C_{18}H_{31}O_2x$, upon which the activity of this drug depends. The three last named are the most important ones, constituting the active principle of pichi. The resin is more active than the fluid extract and has lately been substituted for the latter.

Incompatibles and Synergists.—The fluid extract of Pichi is incompatible with aqueous solutions, the latter precipitating the resin. This can conveniently be avoided, however, by the addition of an alkali. This affords two advantages: (1) It proves a synergist to the action of the drug upon mucous membranes, and (2) it affords the means of perfecting an aqueous solution of the fluid extract.

Preparations, Dose and Manner of Administration.—Pichi is best administered in the form of a fluid extract (made by cold repercolation) in combination with an alkaline aromatic, in doses of from ten to forty minims every three or four hours, or about four to six fluid drahms per diem. It can also be combined with glycerine, which constitutes an excellent modus administrandi. Lately the solid or powdered extract has been extensively used in two to ten grain doses in the form of a capsule, and is supposed to be more effective. **Lamousin** recommends a decoction of the wood, one ounce of the latter to two pints of water, to be divided into four parts and taken during the day. Pichi deserves a prominent place in every text-book on materia medica as well as in the "United States Pharmacopeia."

Actions and Uses.—Applied externally to mucous surfaces, it increases and simultaneously modifies the secretion of the latter, by liquifying it. It has been employed with success in congestions and inflammations of the mucous membranes of the nose, mouth and throat, either in the form of a gargle, spray or topical application, in conjunction with an alkaline solution, preferably the biborate of soda and chlorate of potassium. When taken internally, a similar effect is produced upon the mucosa of the alimentary canal. Like all the bitter tonics, it augments the gastric secretion, thereby promoting appetite and digestion. Likewise—due to reflex stimulation of the biliary ducts—it enhances the flow of bile, which, upon entering the duodenum, is rendered thinner under the influence of this drug. This effect is still more pronounced by combining the fluid extract with phosphate of soda. When absorption has taken place, it proves a valuable systemic hepatic stimulant. Pichi is therefore both a local and constitutional biliary promoter. It stimulates the cardiac ganglia, thereby lengthening systole and raising the arterial tension. It has no marked influence upon the respiratory function proper, although exerting a beneficial action upon irritable bronchial mucosa, by both modifying its secretion and allaying its irritability.

From the above description we see, that pichi is a stimulant and alterative to secretions in general, as well as a sedative to mucous membranes, especially to the urethral mucosa. The latter is its site of predilection. In Chili it enjoys a high reputation in the treatment of urinary diseases. From my personal experience I cannot praise too highly this valuable therapeutic agent in the treatment of the various forms of urethritis. It is said to expell calculi by virtue of its stimulating action upon the muscular fibres of the urethra. **Lamousin** maintains, that it is the resin of this drug which disintegrates the calculi by liquifying the mucus surrounding them. Another theory is, that pichi so modifies the urine, that the latter favors the molecular dissolution of the calculus, its subsequent liquefaction and final expulsion. It is valuable in all forms of calculi, whether biliary, renal or vesical. It has proved an efficient urethral and vesical tonic, and is therefore used in cystitis and urethritis, especially in the subacute and chronic stages of these two affections. It promotes diuresis, allays urinary tenesmus and modifies the nature of the urethral discharge. It is especially useful in cystitis due to mechanical causes. Combined with an alkali, as acetate, citrate or nitrate of potassium, it proves a valuable urinary antiseptic in acute stages of urethritis. It is contraindicated, however, in organic renal diseases with concomitant albuminuria, the latter increasing after the administration of pichi. It has been found efficacious in cases of hematuria, caused by the passage of calculi, by rendering them smooth and less irritating. MR. REGINALD BENSON, however, asserts that this property is due to the solvent action of this drug. Pichi is the *ne plus ultra* in gleet, by modifying its chronic purulency. It has been administered with good results in the lactic and uric acid diathesis, notably in the acute attacks of the former, and in gonorrheal arthritis. In these two diatheses it increases the elimination of the accumulated waste products of metabolism. It has also been employed in hematuria, accompanying cancer of the bladder. In nephrorrhagia from any cause, it acts excellently in conjunction with ergot. Pichi enhances the liquidity of inspissated secretions, and has thus proved efficacious in cholangitis and sympathetic duodenitis, caused by the latter. It has been highly recommended in hepatogenous jaundice and hepatic dropsy. Its greatest specificity, however, is upon the mucosa of the urinary tract. In prostatauxe and acute prostatitis it has rendered valuable service. It has been used with marked success in the last named affections by DOCTOR WILLIAM A. HACKETT, in doses of fifteen minims every three hours, in combination with glycerine. Pichi has proved effective in seminal vesiculitis; also in the subsidiary stages of orchitis and epidymitis, in conjunction with iodide of potassium. Pichi should always be prescribed with an alkali, preferably the potassic salts. Lately it has been recommended in dysmenorrhea, together with viburnum prunifolium and bromide of potassium. The last named possesses two advantages: (1) as an alkali and (2) as a synergist. I have used Pichi both in the clinic and private practice, in numberless instances in subacute urethritis, either specific or otherwise. As an illustration I cite the following case:

MR. B. W., forty-five years of age, laborer, of German nationality, married, was attacked—rather suddenly—by an acute urethritis. The family and past history of patient showed nothing abnormal. He was a robust, plethoric-looking man. On examination I found a urethral discharge, with a considerable degree of posthitis. He bitterly complained of pain in the testicle and in the groin, of a lancinating character and periodic in nature. No specific cause could be detected and patient denies having had improper sexual intercourse. Occasionally he is molested by headaches. I prescribed an alkaline diuretic and ordered him to bring me a sample of his urine. The latter had a milky appearance, and upon treating it with a solution of ferric hydrate ($Fe_2(OH)_6$), a very heavy precipitate of ferric phosphate ($Fe_3(PO_4)_2$), was thrown down, showing an abundance of triple phosphates. I continued the alkaline treatment, with the addition of fluid extract of pichi, and put the patient upon a strict dietary regimen, forbidding him, for the time being, alcoholics and all farinaceous and phosphatic food. The pain gradually decreased, the uretheral discharge diminished, and the urine became clearer and patient made a speedy recovery. I usually administer pichi as follows:

℞	Extr. Pichi, fl., . . .	ʒiv
	Pot. Citratis, . . .	ʒiii
	Tinct. Hyoscyami, . . .	ʒii
	Sp. Aetheris, Nitr., . . .	ʒiii
	Elixir Aurantii, ad., . . .	℥ii

Misce Signa: One teaspoonful in water one hour and a half after meals.

In conclusion, I would say, that the results I have obtained from pichi, are most gratifying.

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THE ANATOMY OF THE FIFTH NERVE AND ITS RELATION TO THE ETIOLOGY AND TREATMENT OF TRIFACIAL NEURALGIA.*

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Prosopalgia, or trifacial neuralgia, must be a disease as old as mankind, for although ancient medical literature is silent regarding the affection, it speaks of conditions which must have produced irritation of the trunk and branches of the trifacial nerve. How the old writers failed to recognize this bold invader of the human system, is indeed surprising. But it was not until 1756, in an article on "Disease of the Urethra," written by M. Andre, a surgeon of Versailles, that the first description of trifacial neuralgia, under the head of "Tic Douloureux," appeared. Nothing more was heard of the disease until ten years later, when Doctor Fothergill wrote an admirable article on the subject, to which he gave the name of "Doctor Fothergill's Dolor Crucians Facies." Later on Doctor Houghton wrote an ingenious treatise on the disease, which did more to bring the subject into general study than the writings of his predecessors. Among these writers prosopalgia was a disease that had its origin in the fifth and seventh nerves which ramify upon the face; thus GREGORY said that facial neuralgia has its seat in the portio dura of the seventh, more frequently than in the branches of the fifth. Next in frequency came the superior maxillary branch, then the ophthalmic branch, and, last of all, the inferior maxillary branch of the fifth. In EBERTH's practice, facial neuralgia was described under the name of "The Fau Neuralgia," the name given tic douloureux of M. ANDRE, by DOCTOR MEGLIN, of Strasburg, and was a disease occurring more frequently in the three divisions of the fifth, than the facial portion of the seventh nerve. GOOD, in giving us the history of trifacial neuralgia, begins with DOCTOR SAUVAGE, who termed tic douloureux "Trismus Maxillaris," or "Tic Dolorificus." SAUVAGE and SOLEYSEL, liken the pain to the bite of a horse. They say that the brute is subject to the disease and persistently bites its manger while suffering from the affection. He agrees with GREGORY that the second branch of the fifth is more frequently involved than the first or third branches. But the portio dura of the seventh, distinguished more under the name of the "Pes Anserina," and distributed extensively upon the face, is more frequently the seat of the affection, than any of the branches of the fifth.

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*Read before the Wayne County (Detroit) Medical Society.

Flint's old "Practice" says that the seat of prosopalgia is in the trifacial or fifth pair of nerves, and that a branch of the superior maxillary part of the fifth, which follows the facial nerve or portio dura, frequently being the seat of the pain, formerly led the older observers to suppose the seventh pair of nerves were often implicated.

ERB, in volume IX, "Von Ziemssen's Cyclopedia of Medicine," describes prosopalgia as a trifacial neuralgia.

HIRT says prosopalgia is a disease confined to the fifth nerve exclusively.

OSLER speaks of prosopalgia as a disease of the trifacial nerve.

Before one can understand trifacial neuralgia and its treatment, he must accurately understand the anatomy and physiology of the fifth nerve.

The trifacial nerve is not only a nerve of motor and sensory power, but it is a nerve of nutrition. The Egytians, Arabians, Jews, Greeks or Romans, knew nothing about the anatomy of the fifth nerve and among the old records, I can find no trace of its anatomy down to PARE's day. It is not known positively who discovered the fifth nerve, but that no one man discovered the whole of it, is a historical fact. I can find no record that ALBINUS, the anatomist of the eighteenth century, ever knew of the fifth nerve. But a student of GASSER discovered the ganglion that bears his name, and likewise the trunk which he described as springing from the sides of the pons varolii. Whether he knew of these branches, the ophthalmic, superior maxillary and inferior maxillary, I cannot say, but the old anatomists understood the ophthalmic branch to be the nerve of WILLIS. SABATIER, JOHN HUNTER and COTUNNIS knew of the distribution of the fifth pair of nerves. The spheno-palatine, or lateral nasal nerve, with its distribution was accurately described by SCARPA and delineated by SOEMMERING in his plate of the nose, as described in the "Observations on Certain Parts of the Animal Economy," written by JOHN HUNTER, and it is also found in SCARPA's "De Organo Olfactus."

To DOCTOR ALCOCK, of Dublin, with his colleague, DOCTOR MAYO, belongs the credit of first tracing the deep origin of the facial nerve. The description of these dissections is found in ALCOCK's "Cyclopedia of Anatomy and Physiology." Previous to these dissections the old English anatomists described the nerve according to WILLIS. WILLIS described the nerve as "springing from the sides of the pons varolii and piercing the dura mater at the anterior point of the petrous bone, and spreading flat under it." CHARLES BELL followed WILLIS' description thus far; so did WESTAR, PANCOAST and WILLIAM E. HORNER. CHARLES BELL further describes the nerve as "matting on the dura mater, into the ganglion of GASSER." He describes the ganglion as "lying on the anterior inferior point of the temporal bone, and on part of the sphenoid bone." It is not unlike to a ganglion in structure and indeed more resembles a plexus. In their passage from the brain, the filaments composing the fifth nerve are loose or easily separated, and are all found so subdivided and entangled at this point as to resist further division. The nerve here swells out into a greater size and seems to be incorporated with the dense fibres of the dura mater. It becomes a dark red, or a mixed color, having a semilunar mass of matter of the same appearance as ganglion stretching across it.

All these peculiarities have by no means been unobserved by anatomists. VIEUSSENS supposed that the use of this ganglion of the fifth pair, before it perforates the cranium, was to strengthen the nerve, and enable it to withstand the motions of the jaw, but it would rather seem to be a ganglion connecting in sympathy all those parts to which the nerve is finally distributed. The connection of the Gasserian ganglion with the dura mater is so firm that it yet remains undecided whether there are sent off here any nerves to that membrane; but I conceive that there are none, and that the connection of the ganglion with the fibrous membrane, or sheath which covers it, has been mistaken for nerves passing from the ganglion to the dura mater. Says CHARLES BELL, as taught by VIEUSSENS: "From the semilunar or Gasserian ganglion the fifth nerve divides into three branches, whence the name 'Trigeminus.' (1) The ophthalmic branch of WILLIS, which passes through the foramen lacerum into the orbit. (2) The superior maxillary nerve, which passes through the foramen rotundum. (3) The inferior maxilliary nerve, which passes to the lower jaw, through the foramen ovale."

In BELL's description of the ophthalmic branch, or nerve of WILLIS he has the nerve entering the orbit in three divisions; first, the frontal; second, the nasal; and last of all, the lachrymal. He describes the ophthalmic branch as running "under the periosteum of the upper part of the orbit, and above the levator palpebræ superioris," an old form of muscle classification. "Upon entering the orbit it gives off a small branch, which passes to the frontal sinus. The nerve then divides into the superior trochlearis and the proper frontal nerve. The first of these passes to the inner part of the orbicularis oculi and frontal muscle. The other, the outermost, and the proper frontal nerve, passes throngh the foramen or notch, in the margin of the orbit, and mounts upon the muscles and integument of the forehead. These superficial branches communicate with the extreme branches of the portio dura or nerves communicans faciei of the seventh. Cases are on record of wounds of the frontal nerve occasioning a great variety of nervous symptoms, and especially loss of sight; and it certainly marks a very particular connection and sympathy between this branch and the common nerves which pass to the eyeball, iris and the retina, that blindness was actually occasioned in one case by the pricking of the frontal nerve. **Morgagni** supposed this to be occasioned by the spasmodic action of the recti muscles pressing the globe of the eye down against the optic nerve."

These crude observations have in part been supplanted by more definite knowledge of the functions of the trifacial nerve and its anastomosing branches.

Bell still continues his description of the nasal branch of the ophthalmic nerve as "sending a branch or twig to form, with a branch of the third pair, the lenticular or ophthalmic ganglion; while the trunk of the nerve passes obliquely forward and upward through the orbit, and gives off two extremely small twigs, which join the fasciculus of ciliary nerves. The nasal branch then continues its course between the superior oblique and adductor muscles; before piercing the orbital plate, it sends forward a branch, which passing under the pulley of the superior oblique muscle, joins that division of the frontal nerve which passes over the pulley. This branch supplies the caruncula lacyrymalis and sends a twig down to the lachrymal sac and duct. The nasal nerve then passing through the internal orbital foramen, again enters the skull, and runs under the dura mater, covering the ethmoid bone and passing through the cribriform plate of that bone, again escapes from the cranium. It is finally distributed to the upper spongy bones, and to the frontal sinuses."

We thus observe such a connection of the nerves of the eye and nose, and of those distributed to the inner angle of the eye, and the muscles of the eyeball, as to sufficiently account for the sympathy existing among those parts. We see the necessity of this connection since the excitement of the glands which secrete the tears, the action of the muscles and the absorption of the tears into the nose, must constitute one action.

The lenticular or ophthalmic ganglion comes naturally to be considered under this division of the fifth pair. The lenticular ganglion is formed by a twig from the nasal branch of the fifth pair, after being united to that branch of the third pair of nerves, which goes to the levator palpebræ and the rectus superioris muscles. The ganglion is of square form and is situated upon the outside of the optic nerve. The ciliary nerves pass out from this ganglion in two fasciculi, and are joined by branches of the continued nasal nerve. The ciliary nerves run forward in the fat of the orbit to the sclerotic coat of the eye and pierce it obliquely in conjunction with the ciliary arteries. The ciliary nerves and arteries then pass forward between the sclerotic and choroid coats of the eye to the iris. The iris is considered as being more plentifully supplied with nerves than any other part in the body. It follows, indeed, from what we formerly said, that a profuse circulation of blood is necessary to an accumulated nervous power, hence we find the iris supplied with a greater abundance of blood-vessels than any other one part of the body. The fine sensibility enjoyed by the iris is owing to those nerves, but it must be observed, that the nature of this sensibility is quite peculiar. Thus, when the iris is touched with the needle, it does not contract, although it is sensible to the slightest variation of the impression of light on the retina. This is a subject of very peculiar interest and has engaged physiologists in a series of experiments.

From the connection of these ciliary nerves with those passing to the nose, SOEMMERING accounted for sneezing being the consequence of a strong light upon the eye. This may perhaps be true but certainly the temporary loss of sight from sneezing does not depend upon this connection of the nerves, but upon immediate affection of the optic nerve and retina, from the concussion and interruption to the circulation or upon the accumulation of blood in the eye.

The lachrymal nerve is the least of the three divisions of the ophthalmic nerve and divides into several branches before it enters the gland. Several branches pass on to the tunica conjuctiva, being joined by twigs of the first branch of the superior maxillary nerve. Others connect themselves with the extremities of the portio dura of the seventh pair, and with the superior maxillary nerves. By these the flow of tears is commanded by the degree of irritation of the surface of the eye, so that the tears flowing, wash away the offending matter.

In discussing the trifacial nerve further, CHARLES BELL describes the superior maxillary nerve as "emerging from the foramen rotundum behind the antrum of HIGHMORE at the back part of the orbit, at the root of the pterygoid process of the sphenoid bone." The infraorbital canal is directly opposite, and ready to receive one branch, while the spheno-maxillary opening is ready to receive another. The chief part or trunk of the nerve, may be said to be seated, and to give out its division in the pterygo-palatine fossa, which lodges the ganglion of MECKEL. Through the spheno-maxillary fissure a branch of the superior nerve is sent into the socket of the eye. This twig unites with branches of the lachrymal nerve, and in general supplies the peroisteum of the orbit. It then sends, through the foramen in the os malor, a branch, which is distributed to the orbicularis muscle of the eyelid, and communicates with the branches of the portio dura of the seventh. Another branch of this first division passes upward from the zygomatic fossa, in a groove of the wing of the sphenoid bone, to the temporal muscle, and getting superficial, it accompanies the branches of the temporal artery.

The superior maxillary nerve after sending off the branches, which have been described, to enter the orbit, having fairly emerged from the cranium, sends two small branches which, uniting, forms a small ganglion of a reddish color, and of a triangular shape, like a heart. This, the spheno-palatine ganglion of MECKEL, is exactly opposite the spheno-palatine foramen, and those nerves and this ganglion are immersed in the soft fat which fills up the space between the sphenoid, palatine and superior maxillary bones, or the spheno-palatine fossa. From this ganglion are sent out several lesser nerves, and particularly the nasal, vidian and palatine nerves.

The superior nasal branch is sent to the back part of the nose and to the cells of the sphenoid bone.

The vidian nerve comes off from the back part of the ganglion and passes into the foramen pterygoideum, backward. It first gives off some small branches to the nose, the posterior and superior nasal nerves of MECKEL; these perforating the bone laterally, are distributed on the pituitary membrane, covering the vomer. The vidian nerve, continuing its course backward, splits; one branch after a long retrograde course through the petrous portion of the temporal bone, forms a connection with the portio dura, while the other forms one of the roots of the great sympathetic nerve, by joining the branch of the sixth pair, which passes down with the carotid artery.

From the distribution of this branch of the fifth pair to the membranes of the nose, and its connection with the sympathetic, some physiologists account for the effects of odors in causing fainting, as the chief nerves of the heart are recieved from the sympathetic. They also account thus for the excitement of the heart in delirium, by stimulant applications to the nose.

The palatine nerve is the largest of the branches sent out from MECKEL'S ganglion. We have to recollect that there are two canals in the bone conveying nerves to the palate, one anterior and large and another running nearly parallel to it, a posterior and smaller one. The division of the palatine nerve which descends through the anterior palatine foramen, is the larger branch; as it passes through the canal, it gives branches which enter the nose, to be distributed upon the pituitary membrane. This larger branch, in its further progress through the bone, divides, and having emerged from its foramen, is distributed all along on the soft palate. The posterior division of the palatine branch, passing down by the posterior palatine foramen, is distributed to the velum pendulum palati and its muscles. There is yet a third branch of the palatine nerve, namely, the external palatine nerve. It is the least of all the branches, and sometimes, instead of coming from the ganglion, is derived immediately from the superior maxillary nerve. This branch descends before the pterygoid processes, and on the convex surface of the upper maxillary bone, and is distributed to the velum palati and uvula.

The superior maxillary nerve, after sending off the branches which form the spheno-palatine ganglion, passes obliquely downward to the infraorbital canal. In this course it gives off the posterior nerve to the teeth of the upper jaw; and this again gives off a twig, which takes a course on the outside of the maxillary bone and supplies the gums, alveoli and buccinator muscles.

While passing in the canal, the infraorbital nerve gives off the anterior nerve to the teeth, and when it emerges from the infraorbital foramen it spreads widely to the muscles of the face, connecting itself with the extremities of the portio dura of the seventh pair or nervus communicans facialis. The "tic douloureux" and the "tic convulsif" of the French authors, are diseases attributed to the affection of this nerve. The seat of the tic douloureux is the side of the face, the nostril, the cheek-bone, and root of the alveoli. SAUVAGE calls it the trismus dolorificus or maxillaris. But it is a disease not absolutely fixed to this point of the cheek-bone; on the contrary, from the universal connection between the nerves of the face, it takes sometimes a wide range, and the disease is sometimes seated in the portio dura of the seventh pair. SAUVAGE has given to one species of it, the name of occipitalis. It is a disease attended with extreme pain, which forces the patient to cry out in great agony. Patients have described it like a flash of lightning through the head, so sudden it is in its attack. And as to its violence, it is sufficient to say, that it throws the patient into the most violent contortions of pain. The pain is felt deep rooted in the bones of the face and seems to spread upon the expanded extremities of the nerve; it is sudden, violent, and reiterated, and it varies in the length and repetition of its attacks. It is confined chiefly to those advanced in years, and is as violent in the day as during the night. The disease is apt to be confounded with affections of the antrum of HIGHMORE, toothache, rheumatism and clavis hystericus, or even with venereal pains. It has been cured by dividing the infraorbital nerve but this is an uncertain remedy.

In hemicrania, the affection of the three branches of the fifth nerve is such as to mark their distributions. There is swelling and pain in the face, pain in the upper maxillary bone, pains in the ear and in the teeth, difficulty of swallowing and lastly, stiffness in moving the lower jaw, in cosequence of the affection of those branches which pass up to the temporal muscle.

There are cases spoken of by SABATIER, wherein the infraorbital nerve being wounded, unusual nervous affections and even death, were the consequence. But it would rather appear, that, independent altogether of the affection of the nerves of the face, in examples which he gives, other causes have been the occasion of the unusual symptoms, and of the death of the patients.

The third branch of the fifth nerve, or lower maxillary nerve, is the last of the three great divisions. Although the largest, it is the shortest branch within the skull, and passes out by the foramen ovale. It is distributed to the muscles of the lower jaw, tongue and glands. The trunk of the nerve having escaped from the cranium, lies covered by the external pterygoid muscle and is at this point divided into two great branches, which again subdivide into numerous small branches, many of which it would be superfluous to describe. It is sufficient to mention them as going first, to the masseter muscle; second, to the zygomatic fossa and temporal muscle; third, to the buccinator muscle.

We regard as the two greater divisions of this nerve, the proper maxillary nerve which passes into the lower jaw, and the gustatory or lingual nerve. The division into these two great branches is formed after the nerve has passed the pterygoid muscles.

The gustatory nerve, immediatly after its separation from the nerve of the lower jaw, is joined by the chorda tympani or perhaps we should rather say, a branch of this nerve, by traversing the petrous portion of the temporal bone in a retrograde direction and is united with the portio dura of the seventh pair, as it is passing through to the ear. This nerve being seen passing across the tympanum, is the reason of its being called chorda tympani. The gustatory nerve, proceeding obliquely downward, sends off twigs to the salivary glands and muscles situated between the jaw-bone and tongue. Where it is passing by the side of the maxillary gland, it gives out some filaments which form a small ganglion, from which branches penetrate the gland. The trunk then proceeding onward between the sublingual gland and the musculus hypo-glossus, several twigs are sent off, which form a kind of plexus amongst the muscles and salivary glands, and communicating with the ninth pair of nerves, are distributed finally to the gums and membrane of the mouth. These nerves account for the flow of saliva from these glands, excited by the sapid food affecting the gustatory extremities.

The gustatory nerve terminates in a lash of nerves, which sink deep into the substance of the tongue, between the insertion of the stylo and genio-glossal muscles. These pass to the papillæ on the surface of the tongue. The sense of taste, the impression of which is received upon the nerve, is seated in the edge and anterior part of the tongue. The action against the palate forces the sapid juice of the morsel to extend to the edge of the tongue.

The proper lower maxillary nerve, which enters into the lower jaw bone, sometimes called the mandibulo labialis, passes downward in an oblique direction to the groove of the lower jaw-bone. Before this nerve enters the canal of the bone, it gives off branches to the mylo-hyoideus and digastricus, to the submaxillary glands and to the fat. The nerve then entering the bone, runs its course all the length of the lower jaw within the bone, and comes out at the mental foramen. In this course it gives branches which enter the roots of the teeth and accompany the branches of the arteries. When the lower maxillary nerve has escaped from the mental foramen it divides into two branches upon the chin; one of these is distributed to the orbicularis, depressor anguli oris, and to the skin and glands of the lips; the other to the depressor labii inferioris and integument, forming a kind of plexus which surrounds the lips. These nerves are also connected with the wide spreading branches of the portio dura of the seventh pair and they are the lowest branches of the facial nerves and the last enumerated of the intricate branches of the fifth pair.

There were other authors who described the trifacial during Bell's days but there were no material differences in their descriptions. The old French authors followed Vieussens' description more closely than that of Willis. Vieussens discovered two small branches from the ganglion of Gasser that ramified over the dura mater and tentorium, that were denied by Bell, but it has been dissected out too often to be disputed.

[TO BE CONTINUED.]

TRANSACTIONS.

DETROIT ACADEMY OF MEDICINE.

STATED MEETING, APRIL 10, 1900.

The President, GEORGE DUFFIELD, M. D., in the Chair.
Reported by H. D. JENKS, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Delos L. Parker read a paper entitled "Concerning the Administration of Drugs." (See page 335.)

Doctor Bigg: I regard myself fortunate in hearing this paper, for, as he truly says, it is a subject of great importance, and one to which, I doubt not too little attention and study are given. I have thought in my contact with physicians and the perusal of journals that the subject of therapeutics and the details of administration have been slighted. I am of course aware that owing to bad preparations and unworthy drugs foisted upon the community, ignorance and carelessness in therapeutics have made it the most discreditable of all the branches of medicine. We have all been disappointed and wondered why. In our solicitude for a particular case, especially if it be a pathological puzzle, we may become purblind in regard to drugs. For example, in an anemic patient ferruginous medication is indicated, and yet results are not good. We have perhaps overlooked the rapid pulse, and by the addition of belladonna or digitalin the missing link is supplied. Many circumstances can be enumerated to show misfit prescribing. I think I voice the profession when I state my disapproval of furnishing ready-made prescriptions. The advance of pharmacology is recognized and I appreciate it. Yet when the physician allows the pharmacist to dominate his treatment he foregoes his prerogatives. Elixirs, tablets, et cetera, are useful, but do not let us lose our heritage in a collateral branch.

Doctor Robbins: The paper is of such a narrow range that discussion is difficult. I believe in a few drugs thoroughly understood and carefully given. I am heartily in sympathy with the latter part of Doctor Bigg's remarks. We use too many preparations with simple drug names. Anybody can write them. We get lazy in prescribing and this leads to lazy methods of diagnosis. The paper elicits active thought.

Doctor Hitchcock: I wish to thank the doctor for his timely paper. It has become an evil—the case in which the physician gives a prescription of a proprietary drug, the name of which indicates what it is used for. The pharmacist is not to blame. He responds to the calls for it. We should be ready to encourage him in standardizing drugs, for this puts the drugs on a certain and sure foundation.

Doctor Chittick: Physicians are very ignorant of when drugs should be given. We use them and fail, because we have taken somebody's say-so without regard to when a given drug should be used. The profession is lame in regard to drugs. The manufacturer sends a glib-tongued man around and most of us cannot answer his statements at all. Some of the claims made are chemical impossibilities.

Doctor Tibbals: I could wish he had gone further in refreshing our memories. No doubt we are careless about little matters. The question of time of administration is a chemical one. But there are other factors. At times there may be a psychical factor. The patient may imagine this or that in regard to the drug. In relation to the point made by Doctor Bigg about proprietary drugs I am inclined to welcome the efforts of the manufacturing pharmacist in making drugs palatable. Some of them are objectionable, no doubt, but the old method of making suppositories by hand is crude and objectionable. So the modern pill is superior to the handmade one.

Doctor Metcalf: Some drugs given by the dispensing druggist are not so good as the manufacturer's pill or tablet. I have in mind an instance where acetanilid was substituted for phenacetine in a prescription.

Doctor Hickey: It is the neglect of just such points as the paper calls to mind that makes us pessimistic in regard to the advantages of drugs, and pessimism is the physician's deadliest foe. I recall an instance where a diarrhea mixture given in capsule form passed through the patient with the capsule undissolved.

Doctor Delos Parker: My idea was not to give a list of rules, but to call attention to a few which are important in prescribing. The physician ought to be more scientific and exact and then we would get on a proper therapeutic basis.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, FEBRUARY 12, 1900.

The President, CARL BONNING, M. D., in the Chair.
Reported by P. C. McEWEN, M. D., Secretary.

RESOLUTIONS ON THE DEATH OF DOCTOR FROTHINGHAM.

Mr. President and Members of the Detroit Medical and Library Association:

Your Committee, to whom was referred the duty of preparing resolutions on the death of Doctor Frothingham, begs leave to report as follows:

Whereas, Divine Providence has taken from earth our brother, Doctor George E. Frothingham.

Resolved, That we tender our heartfelt sympathy to his bereaved family.

Resolved, That we place on record our appreciation of Doctor Frothingham's manly qualities, professional attainments, and brilliant service to the medical profession.

Among these we treasure as an inspiration his faithfulness to friends, devotion to duty, rare scholarship, untiring zeal, clear, incisive thought, long and faithful service at the University of Michigan, his broad attainments as a general physician and surgeon, as ophthalmologist and otologist, and his sound judgment in their practical application.

We recall the fidelity and ability with which he discharged his obligations as member of many medical societies and the duties of official positions therein, notably as secretary of the Section on Practice of Medicine, and later chairman of the Section on Ophthalmology, American Medical Association, and president of the Michigan State Medical Society, secretary and president of the Washtenaw County Medical Society, and president of the Wayne County Medical Society.

His interest in all questions of medical polity was unflagging. To their solution he brought a wide knowledge and keen mental acumen, firing all with the intensity of his own heart. Having satisfied himself of the correctness of any position, he organized the forces within reach for its speedy realization.

A ready writer and forceful speaker, he never watched a professional contest from the fence, but was ever found amid the thickest of the conflict, on the side where his judgment dictated.

When the medical history of Michigan and the United States, during the past generation, shall be written, the labors of DOCTOR FROTHINGHAM will be found to have done much in shaping the course of events.

Though dead, he will ever live in the lives of the students that he moulded into medical investigators and practitioners; in the changes wrought in the thinking and practice of his medical associates; in his papers and discussions which form a part of medical literature; and in the impulse of his strong, intense personality towards that which is truest and best in professional thought and life.

Resolved, That a copy of these resolutions be sent his family and furnished the daily and medical press, especially the Michigan medical journals and the *Journal of the American Medical Association.*

Respectfully,

LEARTUS CONNOR,
CHARLES DOUGLAS,
A. N. COLLINS,
Committee.

EXHIBITION OF CASES.

PRACTICE OF J. HENRY CARSTENS, M. D.

TRACHELORRHAPHY AND PERINEORRHAPHY, WITH DEATH.

MRS. I., aged forty-two years, mother of two children, has been a sufferer for a long time from uterine trouble, painful menstruation, bearing down pain, leucorrhea, et cetera. For some years others had diagnosed a tear and urged an operation. Patient was brought to me by her brother-in-law who was a physician. She consented to an operation which I performed December 5, removing this large plug and cyst from the cervix. The uterus was cureted and the tear in the neck sewed with dry sterilized cat-gut. The uterine cavity was then swabed out with pure carbolic acid. The perineum was subjected to a plain flap-splitting operation and repaired with buried cat-gut. The skin was brought together with a running stitch by very fine number one cat-gut. The parts were dusted with acetanilid. She made a splendid recovery, the parts having healed perfectly, and left the bed on the ninth day. In the evening of the next day, she complained of stiffness in her jaw and said she was afraid she was getting lock-jaw. I told her it was simply a cold and would pass over in a day or so but instead it grew worse. She could open her jaw only a little and had muscular twitchings. The next day she began to scream but had no opisthotonos. Her mind was perfectly clear. She was very neurotic, had a great deal of mental worry, and I was inclined to think the condition hysterical. I asked DOCTOR MANTON to see her with me. He was inclined to the same opinion. DOCTOR WALKER thought it was a mild form of tetanus. I gave her chloral (she objected to morphine) by the rectum as it was difficult to give her anything by the mouth, but it was impossible to keep her quiet. The patient became desperate. Although I had examined the parts on the tenth day, they seemed to have healed by first intention and as it was very difficult to examine her under existing conditions, I administered chloroform on the twelfth day, and made a thorough examination. The uterus seemed to be perfect, everything having healed. The skin incision of the perineum had also healed except a small spot about the size of a pea which was raw and a drop of pus could be pressed out. This pus was placed in a culture tube and carefully examined and cultures made and rabbits injected, but no anerobic bacilli of tetanus could be found. As the rectal use of chloral did not suffice, she consented to the use of a quarter grain of morphine hypodermically. This quieted her. She went into a profound sleep but in seven hours again became restless and noisy and another quarter grain was given to her. This dose kept her quiet until nearly eight o'clock in the morning when she said that she felt better, and was washed and combed by the nurse. While the hairdressing was in progress she was rolled over on her side and immediately stopped breathing and was dead.

What was the cause? I do not know. Her relatives did not allow a postmortem. She had been partially nourished, although sometimes her stomach would refuse food. I made use of quinine, belladonna, hyoscin, and bromide, and all the remedies employed in such spasmodic nervous diseases. With the use of one-half dram of chloral in the rectum, we could produce one hour's sleep. Then the patient would become perfectly relaxed. Her mouth could be opened and no appearance of muscular rigidity was present anywhere. This would hardly be the case with tetanus. If it were tetanus, the innoculations certainly would have had some effect on guinea pigs. I am puzzled to account for the death. It must be one of those obscure nervous conditions, produced perhaps by emboli of some cerebral artery.

VAGINAL HYSTERECTOMY.

Mrs. S., aged thirty-three years, nullipara and neurotic, has had both ovaries removed but continues to menstruate with severe pain on the left side. There was a great deal of suppuration following the first operation. The uterus was found adherent, and I suggested vaginal hysterectomy and removal of the small particle of ovarian stroma which had evidently been left. As patient had not been able to walk to any extent for a year she decided to submit to the operation which I performed December 12. The uterus was large and heavy and on the left side there was a cyst of the round ligament and what appeared to be ovarian tissue about the size of an ordinary bean. After two weeks she walked more in one day than she had walked in a year according to her own statement.

NEPHRECTOMY.

This is the left kidney from Miss M. R., aged twenty years. Her mother and one sister died of pulmonary tuberculosis. Another sister had coxalgia, from which she recovered. Her father is a strong healthy man. Two uncles and one aunt also died of phthisis. Two and one-half years ago, patient complained of pain in the back. This increased in spite of the usual treatment. She experienced difficulty in urinating, pus was present in the urine, and other conditions obtained, but she recovered somewhat and was about, although ailing and losing flesh. On the 16th of December, she experienced a severe chill, her temperature rose to 104°, she had a severe cough, suffered loss of voice, and presented all symptoms indicating a severe cold. The family physician was called and he detected a swelling on the left side which the patient claimed had only made its appearance a few days before. The doctor made a diagnosis of pyonephrosis, probably tubercular, and sent her to me for an exploratory operation, which I performed December 26. I found the whole kidney disorganized and honeycombed with pus, and removed at a small calculation, at least one quart. The kidney and the ureter, as far down to the pelvis as possible, were removed and she made an ideal recovery.

APPENDECTOMY.

MISS S. J. R., aged twenty-two years, while at a normal school in Indiana, was seized with pain in the right side accompanied by severe inflammation, which gradually subsided and she was sent to her home in the northern part of the state. She had recurring attacks of a milder type every few days, and was finally sent to me for an operation which I performed December 20, removing this appendix. Patient made a prompt recovery.

EXHIBITION OF SPECIMENS.

PRACTICE OF HENRY O. WALKER, M. D.

DOUBLE PYOSALPINGECTOMY.

MRS. S., aged thirty-one years, mother of five children, had had one miscarriage and one false conception, the former taking place last July, and the latter occurring Easter Monday, 1899. In all probability the so-called conception was a miscarriage. She has complained of abdominal pains for the last two years, referable to the left ovary principally, latterly, however, to the right ovary. She had had several attacks of chills and fever and on two or three occasions her physician in attendance had little hope of her recovery. She is much emaciated, weighs about one hundred pounds, thirty-seven pounds less than three years ago. Her complexion is sallow. Examination per vaginam revealed a large mass posterior to the uterus on each side and painful on pressure. Diagnosis was as stated above. Operation at 11 a. m., November 10, 1899. A median incision was made with patient in the Trendelenburg position, and a large mass, filling up the right iliac fossa, was found and gradually enucleated, ligated and cut away. During this procedure the tube ruptured. On the left side a mass about half the size was treated in the same way. Drainage was employed and kept up for thirty-six hours. With the exception of an accumulation of gas there was no untoward symptoms.

OSTEOMA OF LOWER THIRD OF FEMUR ON ITS INNER ASPECT.

G. M. C., aged twenty-two years. Patient has always enjoyed good health, but his father died of consumption. Twelve years ago he received several kicks on the right thigh. Shortly after this accident he noticed an enlargement of the bone, which has gradually increased to its present size. Of late there has been considerable pain, with numbness of the leg at times. Operation at 10 A. M., November 10, 1899. A five inch incision was made over the summit of the tumor. The fibres of the vastus externus were then separated with the forceps and the tumor was gradually isolated from the soft tissues and chiselled away. Hemorrhage was slight. The fibres of the muscle were approximated with a running cat-gut suture and the integument closed in a similar manner.

VAGINAL HYSTERECTOMY.

Mrs. Mary M., aged thirty-nine years, was admitted to the hospital for a vaginal hysterectomy; pulse 118, temperature 99.4°, and family history good. Patient had always been in delicate health, but no particular form of illness appeared until eighteen years ago, when at the birth of her first child she had puerperal fever and a laceration of the cervix. Since that time she has had continual backache and severe headache. Two years ago a surgeon discovered an enlargement of the uterus, but owing to her generally poor condition, refused to operate. Her present condition is that of a very weak and anemic woman with poor appetite and chronic constipation. There is a tumor easily discernible through the abdominal wall, evidently an enlarged uterus with irregular nodules over its surface. Her menstruation has been regular and normal. Operation November 10, 1899, at 8:00 A. M. The uterus, ovaries and tubes were removed in the usual manner. Hemorrhage was controlled by forceps. Although weak at the present time her chances for recovery are favorable.

DISCUSSION.

Doctor Mulheron: The choice of route depends upon the case. If one is certain of the diagnosis and the uterus is freely movable, the vaginal method is the best. Ligatures are better than the clamps. The question of correct diagnosis is the sticking point. I recently had a case diagnosed by two competent gynecologists as a uterine fibroid and I also held the same opinion. I started to do the vaginal operation and was compelled to finish by the abdominal route. Examination revealed two immense pus tubes, filled with inspissated pus, tipped over the fundus of the uterus. The abdominal is the best in all doubtful cases.

Doctor Knill: By the vaginal route the mortality is lessened. I think it is impossible to use this method and be certain what is above, and hence I would prefer the combined method.

Doctor Bacon: I have seen a large number of hysterectomies and as yet none have died from shock.

Doctor Walker: I prefer the abdominal method and abhor the clamps.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, DECEMBER 18, 1899.

The President, GEORGE A. KIRKER, M. D., in the Chair.
Reported by WALTER J. CREE, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor David Inglis read a paper entitled, "Some Further Observations on the Treatment of Epilepsy." (See page 327)

Doctor Samuel Bell: I have been disappointed in my treatment of epilepsy. I have used the opium treatment in private and institutional practice without the good results I had anticipated. I have employed the bromide treatment for years, but find that after a time the patient becomes stupefied from its use, and after the drug is discontinued the patient proceeds just as well as when under the influence of medicine. Out-door treatment offers the best results. The Germans were the first to organize colonies of epileptics, and with proper exercise, diet, et cetera, this method gives the most satisfaction. The percentage of ultimate cures is very small. The age and nature of the patient influences results more than any form of treatment. In some cases I have trephined with apparent improvement at first, but the ultimate results were not good.

Doctor Herz: In the diagnosis of epilepsy, one is at times misled by symptoms. The last case I had was treated as epilepsy, but I afterward found that I had to deal with progressive paralysis. Twenty-eight years before the patient had a venereal disease, which he always denied, not through bad intentions, however. But cases of this kind (errors of diagnosis) are excluded. We find that the Jacksonian and other reflex forms are classed as true epilepsy. I think the word is misleading. Jacksonian epilepsy is not a functional neurosis—is not epilepsy—and perhaps another word might be used, for instance, pseudo-epilepsy, that would obviate confusion. Concerning the causes of the disease, perhaps it may be due to toxins, but we do not know anything about them and should not too often take recourse to these explanations.

Doctor H. W. Scott: The few cases of idiopathic epilepsy which I have had the good fortune to see were persons of inordinate appetites with consequent intestinal and malassimilative disturbances. Doubtless many cases of organic epilepsy are due to intra-cranial pressure from tumors or demonstrable lesions. Haig tells us, in his latest work, that some attacks are brought on by intra-cranial pressure from colloid urates. We know that capillary obstruction is induced by an excess of urates in the blood, and an increased blood-pressure and weakened heart are the natural results. He speaks of the association of migrain in numerous cases with both epilepsy and rheumatism. As a natural sequence, he advises the shutting off of the nitrogenous foods with the exception of milk, and his clinical reports seem to justify him. I have had no experience with acetanilid. If the symptoms are due to the presence of urates in the blood, any drug that will precipitate urates will help the attack temporarily. Subsequently these would have to be drawn into the circulation and eliminated. I regard diet and exercise as holding more hope for success than anything else. At the time, or near an attack, salicylate of soda will increase the trouble, especially, when used in connection with alkalies. I think it most important to look into the etiology of the disease. I favor limiting the intake of food.

Doctor Amberg: I would like to know whether the doctor noticed any bad effects from the coal-tar products. He speaks of a patient who died in an epileptic fit. Cannot the tar preparations be held responsible to a certain extent? Concerning the child with worms and alleged epilepsy, I am inclined to differ with the doctor in regard to diagnosis; at least I would not call the attack an epileptic one. The convulsions might have resembled those which we meet in epilepsy and yet the condition might not have been true epilepsy. I admit that worms might furnish the exciting cause for epileptic fits, if we have a patient suffering from epilepsy. However, for the diagnosis of epilepsy, other points must also be considered: heredity, influence of alcohol, conditions during childbirth, and other factors. The continued observation of the patient is of importance.

Doctor P. M. Campbell: My experience with epilepsy has been limited and quite unsatisfactory, only one case recovering, a girl about fourteen, who was treated with static electricity and bromide of soda at bedtime. The action of this current is distinctly sedative, so much so, that children frequently go to sleep while undergoing treatment. I am not prepared to say how much credit is due the electricity in this case, but intend to give it further trial. With regard to the coal-tar products, it seems very strange that nine out of every ten physicians denounce them, while, judging from the amount sold, nine out of every ten use them. I do not think that in suitable doses they have a depressing action on the heart. I have only seen one person cyanosed—an infant—and in this case the heart's action was regular and pulse good. I think the action is principally on the blood and not primarily on the heart itself.

Doctor Gunsolus: A very important cause of epilepsy was not mentioned by the writer of the paper. I regard syphilis as a frequent cause of the disease, particularly when gummata are found upon the brain. Let me cite a case that recently came under my observation, supporting this opinion: An athletic young man consulted me last October for epilepsy. He was a glass-blower by occupation, but had not been able to work for the past two years on account of frequent epileptic attacks, hardly a week passing that he did not have from two to three, and often having them daily for several consecutive days. Some of the attacks were grand mal and others petit mal, but in either variety he always lost consciousness. His memory was poor and his long period of idleness seemed to have induced a state of melancholia. I learned that four or five years previously he had a specific sore on the penis, for which he was treated by his physician a week or two, when the abrasion was overlooked and entirely forgotten. I placed him on the bromides with the addition of the iodides of arsenic, potash and mercury, and obtained the happiest results. He has not had a paroxysm since one week after his first visit to me, and intends resuming his occupation the first of April.

Doctor Goux: I cannot bring myself to believe that autointoxication is in itself capable of producing epilepsy. I believe that where the habit is already formed that it may aggravate the condition and undoubtedly cause an increase in the number and severity of the attacks, but I do not concede that it can be the cause of epilepsy. Meat should be restricted and total abstinence is often necessary. Open-door exercise and work, if possible, where the patient is in no danger of injuring himself, does great good. The opium-bromide treatment is only advocated in those forms of epilepsy characterized by great severity of the symptoms, and in such cases I have met with satisfactory results. The patient must, however, be closely watched during the administration of the opium.

Doctor Wright: While the paper was devoted to the treatment of the disease, it seems to me that discussion regarding our efforts expended toward treatment can be of little practical benefit to the epileptic until we understand what is the real nature of the disease. Hence, I maintain that we should at first acquaint ourselves with the pathology of the disease, and after that the treatment may be easy. Until then we cannot be sure that any treatment we may adopt is of particular benefit to the patient; or, in other words, we do not know whether the seeming recovery is the result of treatment or in spite of treatment. There are now so many theories advanced as to the cause of epilepsy, that one is almost at a loss to know which seems to be the most feasible explanation of the phenomena observed in the so-called fit or epileptic seizure. As between the reflex and the autogenetic theory, I am inclined to accept the latter. With either theory, we have as yet to account for the peculiar fact of irregularly occurring seizures resulting from a continuous cause. There is considerable yet to learn about this obscure malady, but in the meantime, we must do as much as possible for our patients.

PRESENTATION OF PATIENTS.

DOCTOR GORDON presented a case to the society. A man, aged fifty years, had been sick some time and had been examined by a number of physicians. His trouble was said by some to be cancer of the liver. The president asked DOCTORS WEITZ and MULHERON to examine the case and they reported as follows:

DOCTOR WEITZ: I find an exaggerated heart action, mitral murmur and displacement of the apex to the left. Respiratory murmur of the left lung is diminished, also the apex of both lungs. The liver is not enlarged, it might be smaller but I cannot say positively. I would suggest that the stools and blood be examined.

DOCTOR MULHERON: I suspect malignant disease of the pancreas, interfering with the assimilation of fat. The liver I think is contracted. It is hardly possible to examine the patient in a sitting position but the symptoms in my judgment point to pancreatic disease.

DOCTOR MILLIGAN suggested that an exploratory incision might make the diagnosis clear and related a case wherein it had recently been done and a diagnosis of cancer of the pancreas made out.

DOCTOR AMBERG suggested that the stomach contents should be examined.

CORRESPONDENCE.

THE MACKINAC MEETING OF THE STATE MEDICAL SOCIETY.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

SOCIALLY the meeting was a complete success. No small part of the value of the annual meeting is the cementing of bonds of friendship between medical men. The plan suggested, some years ago, of an annual banquet fell through, and deservedly, for the modern society banquet is a mockery of true social enjoyment. What the banquet failed to accomplish was well done, at Mackinac, by the simple fact that a very large proportion of the doctors took their wives along. No one better deserves an outing than the doctor's wife, and she did here, what she very generally does at home, managed things better than the doctor himself is apt to do. She gave the meeting a flavor of good fellowship, which makes one hope that she will continue to honor our subsequent meetings. For a social meeting Mackinac was ideal.

For a scientific meeting the arrangements were badly made. The casino, in which the General Sessions and those of the Medical Section were to be held, was cold as a barn, to say nothing of being the room for our ubiquitous satellites, the book and drug merchants. Practically all the sessions in the casino were badly mutilated. The Surgical Section was assigned to a dining room. At the hours when the sessions should have begun, the room was still in use as a dining room. It adjourned to the general hotel parlor, where the usual turmoil of a hotel lobby made hearing difficult. The Section on Obstetrics and Gynecology was given a little chamber, far too small and too noisy. Future committees of arrangement will win golden opinions by providing quiet and comfortable meeting places for each section, and, if the President and Secretary (with the books and papers of the society) reach the place of assembly the day before the meeting, confer with the committee of arrangements and see that all is ready, they will add to the gaiety of the plain people.

It seems to be generally assumed that a good doctor makes a good presiding officer or chairman. A well trained presiding officer would bring his gavel down, audibly and promptly, at the hour appointed for the meetings to begin. Instead of that we ran on three standards of time—sun time, standard time (twenty-five minutes late), and society time, usually two hours late. A well trained presiding officer would always keep in mind the rights of the audience as well as the rights of a speaker. Instead of that we had the usual exasperation of papers strung out beyond the twenty minute limit, and the speaker finally stopped with an apology instead of a gavel.

There is, even with the best arrangement of a program, far too little time for live discussion of live topics, yet nothing makes medical men take a personal and lasting interest in the society so much as personal participation in it. There are any number of men in the state who are qualified, both by personal qualities and experience, to make the meetings thoroughly interesting and helpful. We need those men—all of them. We can get them if we will let them get a chance to take part in the work. We can read at our leisure every paper presented, but what we cannot get from published transactions is the life and spirit and differing points of view of a keen, frank discussion. The society ought to embody in its constitution, a rule that no paper shall occupy more than ten minutes in the reading, and that no extension of a reader's time shall be granted under any circumstances. This would compel each reader to make a careful but brief abstract of his full paper. The paper could be as full and exhaustive as the writer pleased, and so published, but the main features of the paper in a concise abstract could start the discussion at the meeting. Such a plan would give time for discussion. We need it. We do not need reports of long series of cases. We want ideas. Then we want sharp, keen discussion. We may all agree, to start with, that "I have enjoyed exceedingly the learned and valued paper of DOCTOR BLANK"—let the printer keep that set up—but in the discussion let us say what we think, and let the author of the paper know when he writes it, that he must be prepared to take care of himself. We will then do him quite as much good as he does us. If we want to increase the membership of the society and make it thoroughly attractive to the general practitioner, we must make a rule that no man shall read a paper at more than one section at any annual meeting, nor shall any man be allowed to read a paper at two successive annual meetings. Give the other fellow a chance.

To make the Society a part of the life of the general practitioner, some steps must be taken to stop the present tendency, to convert the society into one for the consideration of major surgical operations. Every practitioner in the state must, necessarily, have an interest in obstetrics and do some nonsurgical gynecology. Yet, this year, a surgeon endeavered to have the Section on Obstetrics and Gynecology abolished. The motion failed but another surgeon gave notice of an intention to renew the attempt next year. Suppose the surgeons keep their hands off the Section on Obstetrics and Gynecology. Oddly enough, the sharpest, most lively discussion, in any section this year, was held in the Section on Obstetrics and Gynecology.

Again, three orators were elected a year ago to give, on behalf of each department, a masterly paper before the general session. This is the only way in which the different sections come together, on common ground. It is considered an honor to be elected orator. Yet, at the Mackinac meeting, not one of the orators was given an opportunity to deliver his oration. It was a grave discourtesy to the orators and a loss to the Society. Instead of this, celebrated outside talent was imported. These men spoke to large audiences—spoke at length. The cry is made that only a small fraction of the medical men of the State belong to the Society but it is a question, worthy of serious consideration, whether the custom of importing foreign star performers, thereby keeping our own men out, is not a serious detriment to any society. We will never get them in by calling in men who are geographically great. Because a thing is "ever so far away" it is not necessarily better than the home product. To bar out the men of our own State, deemed worthy of election as orators, and to give ample time to foreign speakers, discourages not only the particular men thus treated but every member of the Society. If the purpose of the Society is to allow distinguished men from distant but still accessible places to enlighten our intellects in Michigan, by all means repeat the Mackinac program. But if the purpose is to unify the regular profession in Michigan it is time to plan for the general practitioner.

The Society has a large surplus for which it has no use. The sum of two hundred dollars was appropriated toward the BEAUMONT memorial. (By the way the tablet ought to state the fact that the State Medical Society participated in erecting the memorial. I understand that it does not.) With a surplus we ought to cut down the annual dues and release any member, who cannot attend each annual meeting, from paying dues when he does not attend. Those who wish to secure the annual volume of "Transactions" would of course pay annual dues even if unable to attend a meeting. The present method of charging up back dues against all enrolled members simply drives good men out of the Society about as fast as we get other men in. We do not need revenue or surplus. We do need to include in our Society (as Massachusetts does) eighty per cent. of the regular physicians in the State. Then the Society will become a power in the State.

Mr. Editor: I have given, publicly, some criticisms which were freely expressed in private. Let us have, in your columns, from the medical men of the State, suggestions as to the best plans to strengthen the State Society.

Very respectfully yours,
David Inglis.

21 State Street.

EDITORIAL ARTICLES.

THE MACKINAC MEETINGS.

During the second week in July there convened on Mackinac Island the two medical societies having the largest territorial dimensions in the State of Michigan. On account of the great distance from home to the usual places of meeting in "God's country" few physicians residing in the upper peninsula have heretofore attended the state society, although there would seem to have been sufficient inducement for their having done so. In lieu thereof the Upper Peninsula Medical Society has engaged their attention and by more frequent sessions has satisfied their ambitions in this direction. This year by a happy thought and ready concessions on the part of both, the Upper Peninsula and Michigan State Medical Societies held nearly conjoint sessions, the former convening on Tuesday, July 10, and the latter on Wednesday and Thursday, July 11 and 12, 1900.

The meeting on Tuesday was well attended by the members as well as by a sprinkling from the lower peninsula. The evening program consisted in a memorial meeting to Doctor William Beaumont, at which papers of a historical and memorial character were read. Following this a complimentary lunch was served in the Grand Hotel. The literary work of the following two days was characteristically good and patronized by a representative attendance, the voting list, according to a statement by the secretary, being larger than usual. A "smoker" in the Grand Hotel on Wednesday evening and a complimentary excursion through Les Cheneaux Islands and dinner on Thursday afternoon completed the social functions of the occasion.

So much has been stated in outline of the general character of the meetings, which were profitable and pleasurable indeed to every one present, and it was frequently remarked that it was the best meeting of the State Society ever held. It was not above reproach, however, and for the sake of the future, some mistakes should be remembered. In the first place, preliminary arrangements for the comfortably and conveniently holding of the general sessions and sections had not been completed. On that account the Beaumont memorial meeting was poorly attended, even after a late start, and members scarcely knew from time to time where the several meetings were held. For unsatisfactory reasons also, the general sessions and section work never opened at the schedule time and were consequently late in closing. The annual addresses, which if anything, should be *the* features giving tone to the entire session, being delivered by orators elected by the sections for that purpose, were rudely passed over as though ignored and time and attention were given to visitors from Chicago whom the society had not invited. Perhaps the courtesy extended on Thursday afternoon should be passed over with naught else but gratitude, but it nevertheless did detract somewhat from the real profit of the meeting and contemplated too much for the short time that remained. However deserved these criticisms may be, we do not forget that those who were responsible for these mistakes labored rather under a misapprehension of their duties than any intentional neglect. We have no desire to burn the sore deeper but for the welfare of the society let no stone be left unturned to make the meetings in the future even more successful and the membership extend to every regular physician in the state.

ANNOTATIONS.

LOSDORFER'S BODIES.

On the 27th of last April, according to **Neudörfer** in the *Saint Paul Medical Journal*, **Doctor Losdorfer** reported to the Vienna Medical Society the discovery, in the blood of syphilitics, of bodies that seemed to be characteristic of either the cause or existence of this constitutional disease. They are described as long oval bodies of about the size of acidophile granules of the so-called eosinophile leucocytes, and are recommended to be examined in the "hanging drop" in which, being of lower specific gravity than the red and white blood corpuscles, they peculiarly accumulate on top. They are said to be more easily found after the first eruption appears, although, in progressive cases in which the condition of the patient is growing worse, these bodies often appear in the blood before the exanthema is developed. **Losdorfer** is reported as having detected them also in later stages as gumma, rupia and in hereditary conditions.

Losdorfer is not the first to have presumed upon his findings with reference to this disease, and to his credit it should be stated that he has made no extravagant claims. During the past year and a half that his examinations have been carried on, the blood of one hundred and twenty-five syphilitic patients and of sixty other cases suffering from all kinds of disease, has been subjected to the microscopic test and the results verified by **Professors Paltauf** and **Kaposi**. It was on account of their eminence that conservative old Vienna gave **Losdorfer** attention. The report is merely preliminary and though the real significance of these bodies will depend upon their relation to syphilis itself, their discovery will doubtless shed at least a side light if not a brighter ray.

THE VISITING NURSE ASSOCIATION OF DETROIT.

One of the most truly charitable institutions in Detroit has already made public its second annual report and yet how few have even known of its existence. The Visiting Nurse Association of Detroit was organized March 10, 1898. Its object is the systematic management and the gradual extension of district nursing. During the year ending March 1, 1900, three trained nurses, at nominal salaries, devoted their skillful and intelligent services to the care of sick and helpless poor in Detroit, making 4,945 visits for purposes of nursing, the loaning of linen and various other articles of necessary convenience in the sick room, and, in many instances, the obtaining of food and fuel, which were either not available or not available in time through the ordinary channels of public charity. On an average, thirty-three patients have been cared for each month at an expense for the year of $1152.08. The sources of revenue are subscriptive and membership, the latter fee being one dollar per year. This organization shows two hopeful signs of interest to physicians. One is the public recognition of the charitable work which physicians as a class do voluntarily for the needy poor as is indicated in the article of membership, which considers all physicians as honorary members exempt from fee. The other is the willingness and readiness of the laity to also voluntarily and systematically participate in the relief of the less fortunate.

GROWING PAINS.

Rheumatism in children is more often met with than was formerly supposed. It is true that in childhood the joints are less frequently involved than in maturer years but the liability of endocardial affections is correspondingly greater. We are all familiar, from our tenderest years, with the term "growing pains," and remember distinctly the amused indifference with which the mention of our muscular pains of that description were greeted. It is now conceded that the leg aches and pains in arms of the rapidly-growing anemic boy or girl before or about the age of puberty, usually ascribed to over rapid growth, are in reality due to rheumatic disposition, and it is maintained that closer investigation will in the majority of such cases reveal that origin. The recognition of this fact is immensely important as the institution of prophylaxis at an early stage in endocarditis is attended with profound significance upon the later years.

MEDICAL NEWS.

A NEW MEDICAL SOCIETY.

On the 2nd of July, 1900, there was launched on its career a new medical society called the Detroit Medical Society. The object of its founders is to amalgamate into one large body of medical men, the Wayne County Medical Society and the Detroit Medical and Library Association, two rival organizations of long standing. There is already exhibited a long list of enthusiastic members who regard the object with favor and pronounce the method unique and adapted to the end. All regulars in good standing are eligible and solicited for membership. The officers elected are: Charles T. McClintock, president; H. W. Yates, vicepresident; L. J. Goux, secretary; James E. Davis, Treasurer.

PROGRAM FOR SEPTEMBER, 1900.

September 5—"Prevention of Sterility in Women." Address by Lewis S. McMurtry, M. D., Professor of Gynecology, Hospital College of Medicine, Louisville, Kentucky.

Discussion: Doctors Frank D. Summers, Emma D. Cook, Hal C. Wyman.

Refreshments.

September 12.—"The Importance and Significance of the Reflexes." Paper by Irwin H. Neff, M. D., of Pontiac, Michigan.

Discussion: Doctors George E. McKean, John J. Marker, of Eloise, Michigan, Hiram A. Wright.

September 19.—"The Etiology and Treatment of Purulent Pleurisy." Paper by Stanley G. Miner, M. D.

Discussion: Doctors Willis S. Anderson, James A. McVeigh, Frank B. Tibbals.

September 26.—"Nephritis: Etiology and Pathology." Paper by Martin V. Meddaugh, M. D.

"Nephritis: Prognosis not so Black as Painted." Paper by Frederick W. Robbins, M. D.

Discussion: Doctors Hedley Williamson, John D. Riker, of Pontiac, Michigan, James A. Winter.

OFFICERS OF THE MICHIGAN STATE MEDICAL SOCIETY.

President, P. D. Patterson, Charlotte; Vicepresidents, B. D. Harrison, Sault Saint Marie, J. B. Martin, Traverse City, J. C. Wilson, Flint, S. I. Small, Saginaw; Secretary, A. P. Biddle, Detroit; Treasurer, Charles E. Hooker, Grand Rapids. Officers of Sections: Surgery and Ophthalmology.—Chairman, F. B. Tibbals, Detroit; Secretary, A. J. Abbott, Albion; Orator, J. H. Carstens, Detroit. Obstetrics and Gynecology.—Chairman, J. B. Whinery, Grand Rapids; Secretary, Christine Anderson, Detroit; Orator, W. H. Young, Nashville. General Medicine.—Chairman, W. H. Haughey, Battle Creek; Secretary, J. A. McColl, Grand Rapids; Orator, Samuel Bell, Detroit. Place of next meeting, Battle Creek.

A NEW CHARITY.

Following out the plan existing in Boston and New York City and acting upon the suggestion of Doctor Polozker to His Honor, the Mayor has made arrangements whereby sick children and attendants may, on application, obtain the privilege of riding on Belle Isle Park Steamers. As such privileges are to be had only on certifications of physicians, the danger of contagion and other abuses will be avoided. Phaeton tickets good across Belle Isle bridge for sick child and attendant may also be secured from the Commissioners of Parks and Boulevards. This is a proper and economical form of public charity.

RECENT PUBLICATIONS.

REVIEWS.

PRINCIPLES OF SURGERY.*

As we glance historically over the views held concerning the principles of surgery, and especially those relating to inflammation, we are struck with the effect which the sciences of bacteriology and pathology have produced in our conception of them. It is no wonder, therefore, that until recently it has seemed almost necessary to incorporate into modern text-books on surgery, much that really belonged to cognate branches. Now, however, with less need for demonstration, we fully agree with the contention of the author of this work that a less comprehensive treatment of this subject is both feasible and more useful. In this volume the subject is treated in a systematic and logical manner after the author's own didactic style, in which the personal and interrogatory enter largely—features undoubtedly pleasing to his students but possibly objectionable to the general reader. The work is admirably adapted to its purposes, the resumé on inflammation is a valuable appendix, and altogether it will supply a genuine need.

*By Charles B. Nancrede, A. M., M. D., LL. D., Professor of Surgery and Clinical Surgery in the University of Michigan, et cetera, and W. A. Spitzley, A. B., M. D., Senior Assistant in Surgery in the University of Michigan. Illustrated. W. B. Saunders, Philadelphia.

NERVOUS AND MENTAL DISEASES.*

This work of four hundred and fifty 12 mo. pages is well calculated, in our opinion, to furnish the medical student with just that amount and kind of special knowledge on these subjects, that he is able at first to assimilate. It is a comprehensive manual, up to date and servicable also to general practitioners and to those whose special work lies along other lines.

*By Charles S. Potts, M D., Instructor in Electro-Therapeutics and Nervous Diseases in the University of Pennsylvania, Philadelphia. Cloth, $1.75, net; flexible red leather, $2.25, net. Lea Brothers & Company, Philadelphia and New York.

CLINICAL CHEMISTRY.*

This small volume is intended for clinical purposes only. It is a reliable guide for the chemical diagnosis of those conditions requiring an examination of food elements, the gastric contents, feces, milk and urine.

*By Elias H. Bartley, B. S., M. D., Ph. G., Professor of Chemistry and Toxicology in the Long Island College Hospital; Dean and Professor of Organic Chemistry in the Brooklyn College of Pharmacy. Thirty-three illustrations. P. Blakiston's Son & Company, Philadelphia.

METHODS OF STAINING THE NERVOUS SYSTEM.*

It requires an expert in microscopic technique to properly adjudge this work, but little more need be said in recommending this translation of it than to state that, although not intended for the tyro as a text-book on microscopy, the second edition was demanded nine months after the first appeared. It is a handy, clean looking and well arranged manual.

*By Doctor Bernhard Pollock. Translated from the second German edition by William R. Jack, M. D., B. Sc., Dispensary Physician to the Western Infirmary of Glasgow, and Assistant Medical Tutor to the Professor of Clinical Medicine in the University of Glasgow. F. Bauermeister, Glasgow. Whittaker & Co., Paternoster Square, London.

TRANSACTIONS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

This volume, the sixth of the series, represents the proceedings of the American Medico-Psychological Association at its fifty-fifth annual meeting, held in New York, May 23-26, 1899. Following the published list of members, organization, and minutes of the meeting, is the text of twenty-eight addresses, papers and memorial notices of deceased members. The papers are of a high order being worthy of individual mention and constitute this a valuable publication. To Doctor Burr, the Secretary, great credit is due for the careful editorial work.

TWENTY-FIFTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH.*

This report for the fiscal year ending June 30, 1897, consists of first, a record of the work of the board and of the Secretary, investigations, correspondence, et cetera; papers on subjects relating to Sanitary Science by Henry B. Baker, M. D., Professor Delos Fall, Honorable Frank Wells, Professor F. G. Novy, M. D., H. H. Waite, A. B.; and secondly, abstracts and studies relating to the meteorological conditions in Michigan, the causes and communicability of certain diseases and other abuses and nuisances. It is an exhaustive and carefully prepared report, the papers are valuable contributions deserving of wide circulation, and the statistical studies are both interesting and useful. It is to be regretted that a mode of distribution better calculated to disseminate the facts contained therein cannot be adopted.

*Published by the State Board of Health by authority of the State of Michigan.

INTERNATIONAL TEXT-BOOK OF SURGERY.*

Perhaps in no way is the transitory character of our medical knowledge better illustrated than in the publication of text-books, one after another, many of them being designed to cover the same ground and issued for like purposes. In this regard the field of surgery offers no exception. The numerous works on both general and special surgery that have appeared during the past few years, indicate both the interest that this subject has aroused and the great number of earnest workers engaged in promoting the usefulness of the art. The work before us is more pretentious and of larger scope than most others, being disposed in two volumes and contributed by a large number of authoritative writers from both sides of the water. Volume I treats of general and operative surgery under the following heads: Surgical Bacteriology; Hyperemia; Inflammation; Local Infection and its Terminations; Suppuration; Abcess; Ulcer; Sinus; Fistula; Surgical Pathology of the Blood; Wounds and Contusions; Burns and Scalds; Effects of Lightning; Shock; Fat Embolism; Repair of Special Tissues; Constitutional Reactions to Wounds and their Infections; Erysipelas; Hospital Gangrene; Tetanus; Hydrophobia; Anthrax; Glanders; Actinomycosis; Madura-Foot; Snake-Bite; Insect-Bite; Gangrene; Surgical Tuberculosis; The Technique of Aseptic Surgery; Operative and Plastic Surgery; Minor Surgery; Anesthetics and Surgical Anesthetics; Tumors; Fractures; Injuries of the Joints; Dislocations; Dislocations of the Hip; Diseases of the Bones; Diseases of the Joints; Diseases of Special Joints (Orthopedic Surgery); Congenital Dislocation of the Hip; Flat-Foot; Club-Foot; Surgery of the Muscles; Tendons and Bursæ; Cranial Surgery; Surgery of the Spine; Surgery of the Peripheral Nerves; Surgery of the Heart and Blood Vessels; Surgery of the Lymphatic System. Volume II treats of regional surgery in thirty-three chapters under the following titles: Surgery of the Mouth and Tongue; Diseases of the Jaw and Gums, Pharynx, and Tonsils; Surgery of the Nose, of the Neck, of the Esophagus, of the Thorax, of the Breast; The Technique of Abdomnial Surgery; The Diagnosis of Abdomnial Diseases; Peritonitis; Acute Intestinal Obstruction; Surgery of the Stomach and Intestines, of the Vermiform Appendix, of the Liver, Gall-Bladder, Biliary Passages, and Pancreas; Hernia; Diseases of the Rectum and Anus; Surgery of the Penis, Urethra, Prostate and Bladder, of the Ureters, of the Kidneys, of the Scrotum and Testicle; Gynecology; Surgery of the Uterus; Influence of Age and Race in Surgical Affections; Gonorrhea; Syphilis; Surgery of the Eye, of the Ear, of the Skin; Military Surgery; Naval Surgery; Traumatic Neuroses; Tropical Surgery. Under these heads the whole subject of surgery is thoroughly considered, and although the result of combined authorship, a method which formerly presented many objections that are now overruled by more numerous advantages, the unity of the work in no way suffers. Furthermore, that which is presented in these volumes is no rehashed material pictured with worn out plates but that which is new and useful today. The work is a credit to all concerned.

*By American and British authors. Edited by J. Collins Warren, M.D., L.L.D., Professor of Surgery in Harvard Medical School; surgeon to the Massachusetts General Hospital: and A. Pearce Gould, M.S., F.R.C.S., Surgeon to Middlesex Hospital; lecturer on Practical Surgery and teacher of Operative Surgery, Middlesex Hospital Medical School; member of the Court of Examiners of the Royal College of Surgeons, England. W. B. Saunders, Philadelphia.

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ORIGINAL CONTRIBUTIONS.

ADDRESSES.

THE SURGICAL TREATMENT OF SUPPURATIVE DISEASES OF THE MIDDLE EAR.*

BY OLIVER A. LACRONE, M. D., KALAMAZOO, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN the Elder Edda, that wonderful group of the myths of the Northland, we are told of HEIMDALL, "that god of credit" who was watchman of the bridge Bifrost, leading to the under world.

> "His ear was the best at hearing.
> Of all above or below:
> When the springtime's step was nearing,
> He heard the grasses grow.
>
> "He heard the talk of the fishes
> Deep down in the silent sea,
> And even the unbreathed wishes
> Of the chick in its shell, heard he.
>
> "He heard the feathers growing,
> And the wool on the old sheep's back:
> And even the light cloud showing
> Far off on the sunbeam's track."

In them the belief was strong that the sound of HEIMDALL's horn will be heard over the world, and shall be the signal for the battle of the gods which shall end all things in the twilight of the last day.

There is perhaps no more interesting study in the whole science of medicine than to trace the gradual evolution of otology.

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*Orator's Address for the Section on Surgery and Ophthalmology of the MICHIGAN STATE MEDICAL SOCIETY at the Mackinac Island meeting, July 1, 1900.

From a time previous to that early age when, we are told, EMPEDOCLES discovered a snail-shaped cartilage in the ear which he considered "the real organ of hearing, and that the vibrations of the air caused it to give forth a tone which was perceived by the soul," down to our own century much has been written on aural medicine and surgery, but not until TOYNBEE published the results of his study in 1851 did we get a really scientific description of the pathological anatomy of the ear.

In the early history of aural surgery we find much less progress in the *treatment* of diseases of the ear than in the study of its *anatomy*. Are we not in somewhat the same danger at the present time, even though the study of the pathological anatomy of the ear has been enriched by many of the ablest writers of our own and foreign countries?

The temporal bone is of great interest to the surgeon from the position it occupies in the skull, and its relation to other bones and tissues. It contains the delicate structure of the auditory nerve with its labyrinth of beautifully differentiated nerve tissue, while the semicircular canals maintain the equilibrium. It furnishes a canal for the exit of the facial nerve. It contains the tympanic plexus. It supports the Gasserian ganglion and transmits the sympathetic. It forms part of the canal through which the pneumogastric, glossopharyngeal and spinal accessory nerves find their exit. It supports the superior petrosal, harbors the sigmoid, and is grooved for the lateral sinuses.

Its tympanic cavity is in relation with the throat in front through the Eustachian tube, and through the antrum it communicates with the mastoid behind.

Lined with a mucous membrane continuous from the throat to the mastoid it is susceptible to inflammation by extension, and having its drainage at the top and front of the tympanic cavity, it is not particularly well adapted to eliminate pathogenic organisms.

Suppurative processes of the middle ear are usually the results of infective invasion from the throat, and a considerable number of these cases might be prevented by the timely use of antiseptic sprays in the early stages of rhinitis, pharyngitis and tonsillitis.

By far the greater number of ear cases that the surgeon is called upon to treat are attended by inflammation, *either catarrhal* or *suppurative*. Every physician treats catarrhal inflammation, but the suppurative variety usually finds the surgeon, and that too, after the acute symptoms have subsided, and the process has settled down to an old discharging ear.

The majority of these cases of chronic ulceration and suppuration, are due to neglect, the patient never comprehending the danger he is in, and since resolution occurs in a great many cases with little or no treatment, the physician is liable to put them off with a little boric acid to be blown into the ear.

The pathological changes which take place in the mucous membrane lining the tympanum, antrum, and mastoid, depend on the degree of inflammation and the virulence of the pathogenic organisms present.

The attack may be so mild as to amount to little more than congestion or so severe as to fill the tympanic cavity with pus and debris, in a few hours. We have to deal with a membrane that performs the double function of mucous membrane and periosteum, and any interference with nutrition leads to an early destruction and ulceration to some part of its structure.

The free venous communication of the mastoid and tegmen with the sigmoid, and superior petrosal sinuses, increase the danger of the infective emboli reaching the brain.

In the majority of cases the discharge is kept up by a pocket of pus, by granulation tissue and polypi or by caries, and the treatment to be effective must take into consideration the elimination of any one or all of these processes if they exist.

The importance of free drainage cannot be overestimated, and our first effort should be directed to secure this result. It should not be forgotten that extensive suppuration may exist in the tympanic cavity without rupture of the drum. In most cases the drum is ruptured in some portion, often in the upper and posterior segment, where the drainage is next to impossible.

The enlargement of the opening or making a new opening in a more favorable location, may be necessary to obtain our object. A free opening made carefully with a sharp knife, affords a better view of the pathological process, and allows us to make a more thorough application of antiseptics, astringents, or the cautery. Syringing the ear indiscriminately is now almost universally condemned and very justly.

The possibility of forcing infected material into the antrum should never be forgotten. It is far better practice to mop out with dry cotton all that we can, and then to carefully cauterize the parts involved, or to throw into the tympanic cavity a few drops of a one to two per cent. solution of nitrate of silver, with a syringe which has a long, bent needle point, and allows us to pass it through the perforation in the drum. To cauterize the point of ulceration, to carefully curet a carious surface, to apply to a pocket of pus a disc of iodoform and alum, often afford brilliant results. Failures, when they occur, serve to convince us that the disease is more extensive than we anticipated, and remind us of other routes by which the attack must be made.

Polypi projecting through the drum may be snared off and the pedicle cauterized, or we may seize them with forceps and twist them off.

Not infrequently we meet with a mass of granulation tissue, the result of necrosis, irritating secretion, debris, et cetera which is a constant factor in keeping up the discharge. Their removal is necessary and may be done as in the case of polypi. To this statement there is one exception or rather caution. Erosion of the tegmen sometimes occurs, and when it does the dura throws out a mass of granulation to prevent infective invasion. The removal of this mass of granulation, without the absolute removal of all infective matter, would serve only to hasten a nearly if not fatal complication.

Granulation not only occurs in the tympanic cavity and drum itself, but it may be present in the antrum and block the escape of pus from the mastoid. This frequently occurs in the mastoid when the inflammatory process spreads rapidly and infection invades the mastoid. There are a chain of symptoms present that are not likely to be overlooked.

Typical cases of mastoid involvement, marked with pain, high temperature and swelling over the mastoid and lymphatic glands below, are usually alarming enough to demand immediate attention, and there is little difficulty in securing the consent of the patient and friends to operative procedure.

That very serious disease may affect the mastoid and antrum without swelling over the mastoid process, or even enlargement of the superficial glands below it, has in all probability occurred in the experience of most of you. It was illustrated by two cases I recently operated upon.

In one, aged sixty-eight years, following a slight discharge from the ear, the temperature rose to 106½°, with rapid, feeble and irregular pulse and delirium. Consent to operate was not granted until three days later, when the temperature was 105°, pulse 145 and very feeble. The whole mastoid cavity and antrum were full of pus, the cellular structure was destroyed. While undoubtedly there was some meningeal involvement in this case, there was no point which would warrant interference. The temperature dropped to 101°, and continued between 99° and 102° for a few days, the appetite and pulse improved and she has made favorable recovery.

In the second case, aged sixty-five years, feeble, the patient had la grippe with bronchial symptoms. There was a temperature of 104°, and some earache, with slight discharge. Operation on mastoid was advised. Five days later, the temperature rising to 105°, the operation was performed and a quantity of pus and granulation tissue removed. She made a quick and uninterrupted recovery.

There are undoubtedly many cases of mastoiditis that are never operated upon, when the inflammatory process is mild, and the acute symptoms are not present or subside quickly.

There are cases wherein the process is kept up for a long time, never becoming acute enough to cause alarm, and yet continue to discharge septic debris into the tympanic cavity and make it impossible to cure the discharging ear.

I am firmly of the belief that when diligent treatment of the tympanic cavity for a considerable time fails to arrest the discharge, the proper treatment is to open the mastoid and antrum and afford free communication with the tympanic cavity.

Certainly we are as justified in making an exploratory incision in this region as in any other. The danger is less than in opening the abdomen, and in no region is pus capable of producing such serious results, and the removal of pus, dead bone, and granulation tissue is good surgery.

After operation on the mastoid, we have a mass of cicatricial tissue fill in which is nonvascular and forms an efficient barrier to the extension of infection to the sigmoid and superior petrosal sinuses, and it protects the part of the brain usually attacked. It allows more vigorous treatment of the tympanic cavity, especially if the Eustachian tube is open, for there is no danger of forcing pus into the antrum and mastoid.

Infective invasion may spread to the brain through the free venous communication of the mastoid and antrum with the sigmoid, and superior petrosal sinuses, from infective thrombosis or emboli. From ulceration or erosion through the tegmen they may find lodgment in the dura, or they may follow the sheath of the facial, or through the fenestra ovale to the vestibule.

To preserve hearing unimpaired if possible should be our constant aim, but there are times when the spread of infection far overshadows hearing, and justifies the sweeping away of part or all of the auditory apparatus.

MEMOIRS.

TUBERCULOSIS: ITS CLINICAL HISTORY, DIAGNOSIS AND PROGNOSIS.*

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In speaking of tuberculosis, I shall limit myself almost wholly to tuberculosis of the lungs, because certain chronic forms of tuberculosis of the lungs are not only the most important, but by far the most common of all tuberculous diseases. As an evidence, I may cite the statistics given by the State Board of Health for 1898, according to which, out of 2,826 cases of tuberculosis of all kinds dying in that year, 2,153 had the pulmonary affection. Still more striking are the German statistics, according to which about nine-tenths of all tuberculous cases are pulmonary.

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It is not necessary to attempt a full description of the clinical history of pulmonary tuberculosis, since the disease for a large part of its course is so well known that even the layman recognizes it with great certainty. It is worth while recalling the fact that within the last few years our knowledge has extended to an earlier part of the course, or in other words, we recognize the disease at a much earlier stage than was formerly the rule. Reference to the common text-books will show that it is not long since the descriptions of the diagnostic features began with relatively advanced changes, whereas at the present time we recognize pulmonary tuberculosis sometimes with certainty, much oftener with a strong probability, months before the signs alluded to are present. In this connection I may mention the interesting change in the use of the term pretuberculous. It is not long since this word was applied to a stage claimed to be recognizable before the patient was actually the victim of the specific disease. Now the word is used by some careful writers to indicate the tuberculous affection anterior to the appearance of tubercle bacilli in the sputum. It is important to reiterate and emphasize the statement that in many cases we can recognize certain and very important changes before the bacilli appear. In believing this we should not underrate the enormous value the discovery of the tubercle bacillus added to practical diagnosis. There are some cases even now in which the baccili can be found in the sputum when other signs and symptoms are altogether uncertain. Moreover, the large amount of work done with the tubercle bacillus has had much to do with the search for other early evidences of disease.

In connection with the course of the disease a few words may be said regarding pathology. It was an undoubted gain when the term tuberculosis came to be applied to the common form of that infection in the lungs, although many were thereby led to overlook the fact that tuberculosis was not the only process involved. In the course of the last twenty years a great deal of light has been thrown on the other changes, and we recognize them now as due to the action of associated organisms conveniently included under the term mixed infection. From clinical and anatomical experience we know that every case of chronic pulmonary tuberculosis, in other words, every case of bacillary consumption, is sooner or later a disease with complex anatomical changes and compound bacterial origin. There are certain symptoms that are highly suggestive of the secondary infections, more especially those long known as hectic, or at a later period as septic, but it is on the other hand essential to remember that the existence of such an infection cannot be positively demonstrated by laboratory methods as easily as we demonstrate the specific disease. By the use of methods available only in well-equipped laboratories we can, it is true, determine with almost positive certainty the existence of associated germs in the air passages or in lung cavities. We may also demonstrate with considerable accuracy the existence of associated germs in the blood, or, as evidence of blood-infection, in the urine, but all these examinations involve very serious sources of error, and their practical importance is extremely small.

Diagnosis.—The chief value of a knowledge of the clinical history of a disease is, of course, its use in diagnosis, and the supreme importance of the early diagnosis of tuberculosis depends on the belief, by no means new, but never so widely held as now, that tuberculosis is curable in many cases, and in general in proportion to the earliness of the diagnosis. It is a truism that errors in diagnosis depend more frequently on insufficient examination than on lack of knowledge. This is especially the case in tuberculosis, in which the number, variety and often the vagueness of the signs and symptoms make thoroughness of examination especially necessary. The neglect of the early examination of tuberculous subjects is one of the most obvious and one of the most lamentable faults in medicine today. A prominent specialist in Colorado tells us that in only forty per cent. of all the patients referred to him have examinations of the sputum been made. When we consider that practically all of these patients were diagnosed as tuberculous before they were sent, and that perhaps the majority of them were able to consult men of standing in the profession, the proportion is low enough, and yet it is very much higher than I find in patients with manifest tuberculosis who come to the University Hospital. Of these not ten per cent. have had an examination of the sputum made. If we consider not only cases presenting strong suspicions of tuberculosis, but all of those who have sputum, the percentage is very much less. Yet the absolute necessity of examining every sputum for tubercle bacilli has been accepted by the profession for at least fifteen years. Not only is the sputum examination completely left undone in many cases, but in many others it is not made with sufficient care. With rare exceptions the sputum is obtained without any directions to the patient as to the necessary precautions, and a negative examination very often relieves the physician's mind of any further thought regarding tuberculosis, although the so-called sputum may be only saliva, often full of food-remains, in which tubercle bacilli could obviously not occur in more than the scantiest number. It should be remembered that not only should every sputum be examined for tubercle bacilli, but that the examination should be repeated if negative as long as sputum persists.

One of the most unfortunate things about the sputum examination is that, in many cases, be the results positive or negative, reliance is placed upon it and the examination of the patient never attempted. A recent and striking example was in the person of a very promising young physician who for two or three years had been failing in health, and for several months had had severe cough with expectoration, and with fever, night-sweats and emaciation. A number of examinations of the sputum were made by a teacher of natural science, whose mastery of the technic, as shown by some previous work, was extremely imperfect. The day before I saw the patient fifteen cover-glasses had been stained with negative results. The sputum raised the next day and described by the patient as having the same general characteristics as that examined before contained not only tubercle bacilli in large numbers, but also an unusually large amount of elastic tissue. It was bad enough to find that such obvious microscopic evidence had not been earlier available, but it was even more sad to find that the advanced physical signs in the lungs had been neglected on account of the "cheering" report of the sputum examiner.

In patients without marked symptoms, if errors cannot be avoided by remembering the course of the disease, they could be if the physician realized the strong mathematical probability that a patient coming with any symptoms at all may already have the disease, and at once carried out special examinations. Without attempting a description of the necessary methods, I shall confine myself to some of the more important details.

In many cases of beginning tuberculosis the search is abandoned too early because of the good family history. I have published the results of an investigation showing that three-fourths of all consumptive patients in a representative service had no history of tuberculosis of the parents. A negative family history, therefore, should play absolutely no part in excluding the diagnosis of tuberculosis. Perhaps little danger can come from believing that a positive family history of tuberculosis indicates that disease when the other evidence is not clear, although I have published an example showing how an unnecessary amount of alarm may sometimes be caused in that way, and more direct evidence should always be searched for.

As regards the constitution of the patient, it is important to remember that people of the most robust frame and vigorous constitution may and sometimes do become tuberculous. The so-called tuberculous habit is well known now to be in most cases due to the disease, but all persons of notoriously delicate constitution should be guarded against infection and every effort made to render them more robust.

There are certain diseases so frequently followed by or associated with tuberculosis that persons who have had them should always be carefully watched for the earliest evidences of the latter disease, and on the other hand, persons complaining of various symptoms who have had any one of these diseases should be suspected of being tuberculous and close examinations made. Among the most important diseases of this class may be mentioned whooping-cough, measles, influenza, so-called "colds," catarrhs, bronchitis, pleurisy, pneumonia and diabetes. Certain of these diseases are often supposed to exist when the condition is already tuberculous. So with many cases of acute bronchitis or "cold." Even influenza, no doubt, is frequently supposed to be present when there is in fact a bronchitis or pneumonia developed about a tuberculous focus, previously latent. That patients with measles and whooping-cough should be carefully watched for the development of tuberculosis and the associated bronchitis treated meanwhile in the most painstaking way, needs no argument. Repeated and careful physical examinations must be made all the time, the sputum examined, et cetera. A remarkable error in this connection not long since came under my observation. This was in the person of a young married woman who had a rapidly developing tuberculosis with the spasmodic cough not infrequently seen in this disease. When I saw her there were very extensive lesions of both lungs. Yet the patient had been treated the whole winter for whooping-cough without once having her lungs or sputum examined, although numerous consultations had been held, at one of which five doctors were present.

The relation of trauma to tuberculosis of the lung is well known, but occasionally overlooked. All persons who have had crushes or severe blows of the thorax, especially if followed by spitting of blood, should be very carefully examined and watched.

The early symptoms of the disease are so numerous and varied that it is not difficult to understand why they are not more often properly interpreted. Among the most common are symptoms of anemia, sometimes distinctly chlorotic, especially in women and girls. In such patients amenorrhea is frequently the earliest symptom noticed, and not infrequently treated by dilatation of the cervical canal, with or without iron internally. In another considerable proportion of cases the earliest symptoms are dyspeptic, usually with emaciation and sometimes also with anemia. An interesting case of this kind was reported from my clinic by **Bourland** a year ago. I have at the present time under my care a patient with a history of digestive disturbance in the onset of tuberculosis, this time not in the lungs, but in the peritoneum. The patient was a young and robust-looking domestic who was suddenly taken with diarrhea. A physician temporarily in the house made a diagnosis of diarrhea from indigestion, and gave a mercurial which was followed by temporary relief. In a few days the patient became worse, and this time another physician who was called in suspected typhoid fever, but, as the condition began at the menstrual period, and the patient thought she had caught cold, supposed there might be some pelvic inflammation. Local examination showed an absence of pelvic signs, the patient's temperature remained between 99° and 102°, the abdomen became slightly distended, the stools were partly watery, partly formed, and of pale ochre color, without mucus, pus or blood. There were no spots; the spleen could not be felt; the diazo reaction and Widal's test were both negative. There were no signs or symptoms on the part of the thoracic organs; the blood was negative. I saw the patient after she had been sick for about two weeks. There was a deep resistance to the right of the umbilicus difficult to detect on account of the very thick abdominal wall. Another Widal test was negative; the leucocytes still not increased. About three weeks after the beginning I detected free fluid in the abdominal cavity, and in view of the negative examination of the pelvic organs and the other symptoms mentioned, made a diagnosis of tuberculosis of the peritoneum. Laparotomy was made by my colleague, DOCTOR DARLING, and a moderately severe tuberculosis of the parietal peritoneum was found, with slight thickening of the omentum at the point mentioned. It would be absurd to say that every patient with an acute diarrhea should be suspected of having tuberculosis of the peritoneum. It would, however, be proper to consider this a little more frequently than we do. In another case a young man was sent into the hospital with a diagnosis of appendicitis. There was a history of slowly increasing enlargement of the abdomen, free fluid was detected on admission, and laparotomy revealed widespread tuberculosis of the peritoneum.

Cases showing the early abdominal symptoms of tuberculosis of the lungs could be easily multiplied. I will mention only one more, because it illustrates a number of points. The patient complained chiefly of loss of appetite and an unusual tendency to melancholy. She was treated for "congestion of the liver." Certain enlarged glands in the neck were ascribed by the physician to "intoxication from the liver," and the stomach and lungs were asserted to be normal. As a matter of fact, there was extensive enlargement of the cervical lymphatic glands, distinct though not far advanced involvement of the lungs, with tubercle bacilli in the scanty sputum, and the stomach was dilated, prolapsed as part of an enteroptosis, and the seat of a marked and very stubborn fermentation, adding a very undesirable complication to the tuberculosis.

Other early symptoms of tuberculosis that should always be remembered but need not be further described here are weakness, frequent pulse and other disturbances frequently classed as vasomotor, such as tendency on the part of the pulse to run up under examination and an increased tendency to sweating. Fever with or without chills belongs usually to the plainly evident stages of the disease, but is sometimes noticed very early. It seems to me that the propensity to look on the early chills and fever of tuberculosis as malarial is fortunately less common than it used to be. Up to four or five years ago about half the tuberculous patients applying at my clinic had as a sole diagnosis that of malaria, whereas now I hardly ever hear the word in this connection. Pleurisy as an early complication of tuberculosis and pleurisy as a tuberculous disease, or as one leading to tuberculosis, are fairly well known. I find it a source of satisfaction to inoculate a rabbit or guinea pig with the centrifugated sediment of every pleural effusion. Even if this is done, every patient who has pleurisy with effusion should be carefully watched for at least six months, or, if possible, for two or three years.

The importance of cough as a sign of tuberculosis is, no doubt, already sufficiently well known, although the symptom does not always secure the complete examination that it deserves. Hoarseness is also an early symptom of importance and in every case should secure not only an examination of the larynx, but also a complete examination of the patient's body. Local diseases in the larynx should excite the suspicion of tuberculosis more frequently than they do. An instructive case I saw not long ago was in a young man who had been hoarse for several months. Examined by a laryngologist, it was found that one vocal cord was immobile. As there was an inequality of the pupils, the suspicion of brain tumor arose and the patient was accordingly brought to me. I could find no evidence of brain tumor, but on examining the larynx myself I found that the immobility of the cord came from a small, flat, smooth and firm tumor on the posterior wall of the larynx. The examination of the lungs was quite negative, and there were no other symptoms to suggest tuberculosis. I strongly urged the patient to have part of the tumor removed for diagnostic purposes, but he declined. Comparatively soon the tumor ulcerated, physical signs of tuberculosis developed in the lungs, and in a few months the patient died and the organs were sent to me for examination. The tumor had ulcerated completely away, but from the condition of the lungs and that of the rest of the larynx there could be no doubt that the tumor had been tuberculous in the beginning.

The importance of hemoptysis as an early sign of tuberculosis is generally properly conceived; that is, that spitting of blood may be an early sign of tuberculosis, but in some cases comes from other diseases. The importance of the examination of the lungs soon after the spitting of blood does not seem to be so thoroughly appreciated, yet at such times important information can sometimes be obtained from the added chance of detecting the affected area in the lungs, which, under ordinary circumstances, might escape discovery. Even after a negative examination a patient with a history of hemoptysis should be kept under observation several months.

The relation of enlarged glands, especially in the neck, to tuberculosis, is also well known; in fact, it is possible that the diagnosis of tuberculosis is made sometimes too freely in such cases. The mistake is one on the safe side, but sometimes causes unnecessary alarm.

Tuberculosis of the genito-urinary tract is much more frequent than is generally believed. The same rule should be applied to pus coming from that tract as has already been laid down for sputum, namely, it must be examined for tubercle bacilli. Owing to the difficulty of distinguishing between the tubercle and smegma bacillus, animal inoculations should also be made. Very often the examination of freshly passed urine will reveal small caseous particles containing bacilli.

It is not necessary to go into the details of the physical examinations of suspected tuberculosis. The essential points are completeness of the examination, which always depends on the sufficient exposure of the body, the examination in a good light and expertness in the methods of physical exploration. The value of inspection is often overlooked. Frequently in cases, long the subject of discussion because of the negative sputum examinations, I have seen marked immobility of one side and distinct deformity of the thorax. Mensuration very often confirms the results of inspection in very early cases.

As regards percussion, failure to obtain results from this frequently occurs from the fact that the percussion has not been comparative. It is also often forgotten that the earliest percussion signs of disease do not always occur in the same parts. In some cases there will be a difference of resonance above the clavicle, in others the disease will be below, and in others, and these not a few, the only morbid signs will be obtained in the back. Percussion in different phases of respiration is also important, for in some cases the alteration appears best in expiration, in others in inspiration. The comparative percussion of the height of the apices in front and back is of the greatest value in the detection of tuberculosis. Nor should it be forgotten that in rare cases the only physical signs are at the base, either front or back.

Auscultation, like percussion, must be comparative in order to get results of value in the early stages of tuberculosis. In some cases it will give evidence earlier than will percussion, in other cases later. In many cases the early signs of the disease are not appreciated because the breath signs are weaker than normal. The observer expects to hear blowing breathing or broncho-vesicular breathing and so misses the absence of vesicular breathing that should, with changes in the percussion and the expansion, enable him to make a diagnosis. The proper use of interrupted breathing, of prolongation of the expiration, and of the voice signs, are often essential in the work we are considering.

Since the discovery of the tubercle bacillus is a positive proof of the nature of the disease, it is important to be able to obtain sputum when there are suggestive signs without expectoration. In such cases sputum can very often be obtained by giving the patient ammonium chloride or iodide of potash for a few days. Of the other methods of recognizing the disease the tuberculin test and the X-rays are the most important. A good deal of work is being done with the serum reaction, and there is promise that it may in time be of value in the hands of experts. As regards the tuberculin test and the X-rays, it should be clearly borne in mind that both of these are fallible, though much can be gained by using them in connection with the other methods of examination.

Prognosis.—Regarding prognosis in general, it is not necessary to speak. In an actual case the prognosis must be based on a number of factors, each of which varies in importance in different cases, and some of which are rather difficult to make out. The extent of the disease in the lungs is important and often difficult to make out at a single examination. Frequently the patient, when first examined, has widespread rales, very often with broncho-vesicular breathing. Under proper treatment these may be made to disappear in a few days, and the signs then are not only simpler and more positive, but also less extensive. The signs first mentioned are those of a simple bronchitis, perhaps due to an accidental cold, in some cases apparently not unconnected with the use of expectorants. Examined only once, it would be impossible to tell positively whether the patient had not a widespread infection of the bronchial mucous membrane from aspirated sputum. Rather more important than the condition of the lungs is that of other organs, especially of the stomach and intestines, the heart and the kidneys. The existence of fever, the pulse and the state of the blood are also necessary to take into consideration. As regards sputum, it is undoubtedly better for that to be relatively scanty, relatively free from pus and blood, and to have at all times very few bacilli. On the other hand, it must not be forgotten that very often the largest number of bacilli found in sputum come from quiescent cavities, and although such a thing always renders the patient liable to an acute infection of the lung, the presence of the bacilli in the sputum is not evidence of such an occurrence. The condition of the larynx is also important in prognosis, though the occurrence of tuberculous laryngitis is by no means considered so hopeless at the present time as it was previously. So, too, the complicating pleurisy, though always important at the time, is not necessarily a hopeless complication. A point of value in the prognosis of tuberculosis is furnished by the diazo reaction. Numerous observations made in my clinic confirm those made by others, showing that in patients with tuberculosis with positive diazo reaction the prognosis must be considered bad. It is by no means necessary to tell the patient so, but the reaction can sometimes be of inestimable service to the physician by checking over-sanguine conclusions as to treatment. Not the least important prognostic elements in tuberculosis are those relating to the disposition and intelligence of the patient, and his ability to maintain himself without exposure to unfavorable factors.

A STUDY OF THE RELATIONS OF GRAVES' DISEASE.*

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THE pathology of exophthalmic goitre is still unsettled. Postmortems have been made in many cases. Some observers have found pronounced lesions, in the sympathetic nerves and ganglia but these lesions are certainly not the cause of the disease, for postmortems, upon other fatal cases, have shown these structures entirely free from disease. The same argument proves conclusively that, various as are the lesions found in different cases, none of them can be set down as either the cause of the disease or as, surely, explaining the symptoms present. As far as pathological studies go, we are still in the dark. Indeed such lesions as we do find, in various parts of the nervous system, may be regarded as results of a common cause, quite as reasonably as causes of the disease.

Such being the case, it has seemed to me that a consideration of the phenomena, of certain allied affections, may explain the disease, even more satisfactorily than the study of demonstrable lesions. In

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other words, may we not find a working hypothesis which amounts to a practical demonstration?

To begin with, we have certain facts about which there can be no dispute. Total removal of the thyroid gland results in profound changes in the bodily conditions. As regards the body generally, there occurs a remarkable retrogression in the nutrition of the tissues. The connective tissues tend to change back to those of the fetus. The skin tends to revert to the fetal type—approaches more nearly to the type of a mucous membrane, unable to withstand the irritants of extrafetal life. The skin tends to become inflamed and eczematous troubles are common. These retrogressive changes are universal. Most striking of all is the rapid failure of mental power. No structure suffers more than the delicate tissues of the brain. In a short time the patient shows profound mental deterioration; evidently the thyroid gland, in health, exerts a remakable influence upon tissue formation and nutrition.

The demonstration is complete when we simply reverse the process. Feed to a myxedematous imbecile a daily ration of thyroid extract and the whole scene changes. Tissues rapidly return to normal. The beclouded mind clears up. Take away the thyroid extract and the process can be reversed again. Still more. Implant a portion of sound thyroid gland in any portion of the body and, if the operation is done successfully, the implanted gland supplies the needed secretion to keep the tissues normal. The experiment is conclusive.

Another experiment is constantly being made in disease. The thyroid gland may enlarge, in an ordinary goitre, to an enormous size, yet none of the symptoms of cachexia strumipriva occur, nor indeed any other symptoms, save only the purely local ones due to pressure and deformity. An enlarged gland is capable of furnishing, to the organism, a sufficient supply of the normal glandular secretion; this appears to be true as long as a part of the normal glandular structure remains. The so-called hypertrophy of the gland is not an increase of normal glandular structure, but is essentially a replacing of the true structure by venous engorgement, development of blood-vessels, cysts and fibrous tissues. Essentially the enlarged thyroid is a damaged, degenerated thyroid. This is proved by the fact, seen occasionally, that a patient with an old goitre will finally develop the same symptoms as does the patient who has had the entire gland removed.

The cretin, with an old goitre, has as little true glandular structure left as has the patient deprived of his gland by operation. From this it seems certain that an enlarged thyroid does not necessarily supply, to the patient, an excess of thyroid secretion, but rather the opposite. It is well to emphasize this for the enlarged thyroid is very commonly supposed to be flooding the patient with an excess of thyroid juice. Not every cow with a big udder is a good milker—and a cow with a diseased udder is worse yet.

Now, let us add to these facts the following: There is no fixed rule as to the appearance of the characteristic symptoms of exophthalmic goitre. Some patients have every other symptom of the disease without any enlargement of the thyroid. Some develop thyroid enlargement first, and later the manifold nervous symptoms and the exophthalmos. Some never developed the exophthalmos and, lastly, cases are seen occasionally in which all the nervous phenomena of Graves' disease are present in which, at no time, do either thyroid enlargement or exophthalmos develop. For example: A patient has sudden, causeless diarrheas, profuse perspiration, has no endurance, is easily tired out, is tormented by nervous dread, trembles, has rapid heart action. The neurologists watch such a case, always expecting to see an enlargement of the thyroid and protrusion of the eyes develop, but they never do. I believe such cases are, nevertheless, due to precisely the same causes as fully developed Graves' disease.

Again, we have the demonstration that no one of the phenomena of Graves' disease is the certain cause of the others. The enlarged thyroid cannot be the cause of the nervous and ocular symptoms for, were it so, the enlargement would constantly precede the others. And yet all modern observers are convinced that there is an intimate relation between the thyroid enlargement and the other symptoms, and that in some way, the relation is one of cause and effect. This is proved by the curative effect of removal of the gland. There can be, I think, no question that removal of the gland is, in many cases, fully successful.

As a working hypothesis I submit, then, this: exophthalmic goitre is a group of symptoms, of wide extent, caused by the entrance into the blood of an altered secretion of the thyroid gland. The fluid normally secreted is an enzyme which exerts a profound influence on tissue growth. In exophthalmic goitre the normal secretion is changed. The gland secretes a fluid which is a poison, having an elective action on the nervous system, notably on the vasomotor apparatus. That it affects the entire nervous apparatus is clear, from the occurrence, in Graves' disease, of mania, motor and emotional weakness, insomnia, general tremor and other evidences of cerebral and spinal impairment; its toxic effect on the vasomotor system is too well known to need repeating. The palpitation, sweatings, flushings, diarrhea, salivation, all point to profound disorder of the sympathetic system. Under this working hypothesis we can see how all the symptoms of Graves' disease may occur in a patient with a thyroid gland of normal size. It is not a question of an enlarged gland, but of normal secretion by the gland. A gland of normal size may, nevertheless, form an abnormal toxic secretion and so set up all the other symptoms of the disease.

In the commoner cases, in which the thyroid enlargement precedes the other symptoms, we have simply to believe that the enlarged gland is a diseased gland and forms an abnormal secretion—not an excess of normal thyroid juice. If this hypothesis be true, removal of the gland cures by removing the source of the poisonous secretion. So, too, we may well believe that the causes acting upon the gland, to set up changes in the quality of its secretion, tend to set up gross changes in the structure of the gland. The toxic secretion of the gland irritates the gland itself — congestion, inflammation, hyperplasia, result as a rule; this explains the sudden onset of the nervous symptoms of Graves' disease followed by a rapid enlargement of the gland. In those cases noted, in which we have the nervous symptoms of Graves' disease without thyroid enlargement, we are dealing with the exceptional case in which the gland secretes a poisonous juice yet is not itself irritated. All observers agree in the importance of treating the thyroid gland in Graves' disease. Iodine and galvanism may be conceived to act by stimulating the gland to form normal secretion. If the hypothesis be true, there is a hopeful field for medicinal treatment. It is a case of endeavoring to restore the normal function.

This hypothesis explains the rapid onset of Graves' disease following profound nervous shock, by the theory that under the influence of the shock the gland at once proceeds to secrete the abnormal and toxic secretion. We have abundant evidence of the instant influence of shock upon glandular secretion in various other organs.

There are now certain facts in regard to other diseases which seem to throw additional light on Graves' disease. First, let us note the striking similarity between the phenomena of Graves' disease and those caused by the tubercular intoxication.

Both show profuse sweating, a rapid pulse, emaciation, occasional, but profuse diarrheas, a state of high tension of the nervous system. Occasionally in both we see delirium or mania. The hectic flush of consumptives is analogous to the flushings of Graves' disease. And, while the range of fever is by no means high, a pretty continuous rise of temperature is often found in Graves' disease. And in fatal cases it may run quite high at the last. A patient with Graves' disease dies looking much like one dying of a rapid tuberculosis. Under the hypothesis of this paper both die of a continuous intoxication by poisons acting much alike—one formed by a diseased gland, the other formed by tubercle bacilli.

Another condition which may throw some light on the subject of our paper is chorea.

In Graves' disease we are dealing with some cause which profoundly affects, not alone the sympathetic nerves, but the central nervous system as well; a cause which affects motor power, mental conditions and bodily nutrition.

In chorea we are dealing, again, with some cause which is similarly widespread in its effects. It is a mistake to regard the striking motor incoordination of chorea as the essential thing. To do so is to overlook the essence of the disease. Back of the motor incoordination is a condition of profound alteration in the entire nervous apparatus. The choreic child has a nervous systen universally weakened. He loses power to control his emotions, to study, to remember; he has no bodily endurance; he is cross, stupid, dull and weak, as well as jerky. While the precise nervous symptoms differ in the two diseases the causes in both affect the entire nervous apparatus and the bodily nutrition.

Again, the similarity is shown in the sudden onset of the symptoms of either disease as a result of profound shock from fear. So, too, in both diseases there is some relation to the previous existence of rheumatism. The connection of chorea with rheumatism is especially evident. If we include quinsy, endocarditis, pericarditis, growing pains and arthritis as all being of rheumatic causation the relation of rheumatism and chorea is exceedingly common. That chorea is caused by a specific rheumatic poison I am not prepared to say, but that certain poisons, very closely allied, cause the varying symptoms of the two diseases, I believe. I suspect that if we ever reach a fine analysis of the blood plasma and its toxins we will find that rheumatism is caused not by a single poison but by several. The rheumatism which is associated with scarlet fever is very suggestive of this. We see an analogue of this proposition in the study of infective meningitis. Meningitis clearly may result from infection by a considerable variety of bacteria.

All attempts to establish definite pathological lesions in chorea have been as futile as in the case of Graves' disease. But regarding chorea as a widespread intoxication of the body, in which the nervous system specially suffers, we can understand its intimate relation with rheumatism on the one hand and its analogies to Graves' disease on the other.

The working hypothesis, then, which seems best to explain the pathology of Graves' disease is that the primary defect is an intoxication by an altered and toxic secretion by the thyroid gland. That in some cases the altered secretion is due to a diseased gland, but that in other cases the secretion is altered by nervous influences such as fear or exhaustion; that the toxic secretion not only poisons the body but is capable of irritating the gland and causing it to enlarge so that the enlargement follows instead of preceding the development of the toxic symptoms.

The importance of a correct pathology is great. If this working hypothesis be true, the whole effort of treatment ought to be to restore the normal secretion of the gland; to attempt to slow down the rapid heart while ignoring the gland, which is steadily furnishing a poison which keeps the heart on the run, is useless and a waste of time; to check sweating, procure sleep, calm the nervous irritability, control diarrhea, reduce the protruding eyeballs—these are the things which the patient desires, but relieving symptoms while oblivious of their lasting cause is mistaken practice. While this theory is the justification of the surgeon in removing a large part of the gland in certain cases, it is also true that we may reasonably expect to modify the action of the gland by medicinal measures. If we have reason to believe that we can materially aid in the cure of chorea, so we ought to expect to cure Graves' disease. Indeed the prospect ought to be more hopeful for we do not know the orign of the single or, more probably, various poisons capable of producing chorea, but we have the thyroid gland in plain view, near the surface and we know our point of attack. Not only this but a very large part of the medical man's success lies in restoring the various glands of the body to normal activity. Careful studies in medication, directed not so much to relief of the cardiac and nervous symptoms, as to action upon the thyroid gland itself may well be pursued.

THE MEDICAL TREATMENT OF APPENDICITIS.*

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I WAS invited to write on this subject or I should not have chosen it. And I was asked by your Secretary not because of any special qualification on my part to discuss the topic, but because he found it difficult to secure a writer who had the hardihood to run foul of the philosanguineous surgeons in the discussion of the subject, no matter in what minor strain he might sing his humble song. And so, presuming on old acquaintance, the Secretary asked me to sacrifice myself on the altar of "The Medical Treatment of Appendicitis."

I have little to say on my preordained subject, and contrary to the usage of many eminent and ponderous intellects in like case, will say little. If there is anything simply delicious and fascinating in a medical paper, it is the history of the disease; but I resist its allurements and shall not inquire whether the preAdamites had appendices of larger calibre than we, and so escaped our popular malady, or whether the fall of ADAM resulted in a diminution of this tube, and so the seeds of the apple become lodged therein and contributed not a little to "all our woes." In another thing I shall have to disappoint you: that is those foreign authorities whose commonplaces are so much quoted in the orthodox medical paper; its main purpose being to impress the reader with the idea that the author reads French, Italian, German, Spanish, and Japanese with fluency, when found in "our foreign news column." I have a choice lot of these things that have been said an hundred times by American and English authors, but if anyone likes them better after filtration through the gray matter of Doctor Schweinfleisch, Professor von Wunst, Vladmar Kuturnosoff, or Senor Macaroni, he need not go unsatisfied.

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*Read before the MICHIGAN STATE MEDICAL SOCIETY at the Mackinac Island meeting, July, 1900.

My paper will resemble those choice old English works whose first two-thirds explained, by way of preface, what would be said, and what left unsaid and why, and answered anticipated criticisms. Possibly, to the majority of surgeons present, the discussion of the medical treatment of appendicitis would arouse the same feeling of interest that a Chinese treatise on drum and tom-tom treatment of an eclipse would in PROFESSORS BALL and LANGLEY, and they probably would summarize the theme by the advice to send for a surgeon to operate.

If all the interests and predilections of our patients could be ordered to our liking and yield to our control, this would be, to say the least, an easy way to solve the problem. But we shall find many cases on whom we—I mean the majority of surgeons—would not operate. Others there are who absolutely refuse an operation. Now shall we leave the incipient case to nature and wait for the moment to operate, or shall we strive to modify the disease process?

If called within the first twelve hours of the attack, how shall we treat the conditions we shall probably find? The pathological condition is one of inflammation of the mucous membrane and muscular coat, possibly of the serous coat, and probably complete occlusion at some point. There are, as symptoms of this condition, pain, tenderness, rise of temperature and pulse, and probably constipation. Now, our patient is intensely interested in our *doing* something to better his condition and alleviate his suffering. He is not content to wait while the surgeon admiringly watches the unfolding of the case as a florist does a night-blooming cereus. He is not simply a case; he is I, ego, and wants us to do something for him. I would do something by trying to control the pain by an ice bag over the appendix. I would then give a full dose of calomel followed by a hot solution of magnesium sulphate, repeated, if necessary, until very free evacuation occurred. Sometimes the osmosis of fluid from the congested tissue thus secured will abort an attack by rendering patulous the occluded lumen of the tube. If not, it will have cleared the cecum of feces, reduced the congestion of the parts and put them in better condition if an operation is indicated. Now, if the symptoms grow worse or do not begin to subside in the next twenty-four hours, an operation is the safest course. The symptom most clearly pointing to operative interference is an accelerating pulse. Pain is not a very reliable indication, though fever comes nearer to the pulse symptom.

Now, just here, the practice of the profession is not uniform. Some decry the use of morphine, claiming that it masks the symptoms. If pain were as important an index as the pulse, it might be right to allow the patient to endure it for the sake of a clearer view ahead; but it is not. Again, while morphine relieves pain, it does not to any great extent mask tenderness on pressure. It is claimed that morphine induces tympanites, thus not only obscuring the condition on palpation but rendering the operation more difficult. Tympanites is the result of peritonitis and muscular paresis due to inflammation, and not to any great degree to morphine. Whatever influence in this direction morphine may have can usually be nullified by using strychnine in full doses in connection with the morphine, thus giving tone to the bowel muscles. I believe that morphine should be used in sufficient quantities to mitigate the suffering of our patient, and do not think it does any harm, while its influence on the inflamed parts is salutary, and it does not mask any important symptom or obscure indications for operation. But we may be called so late that not only perforation has taken place and abscess formed, but the abscess is already discharging into the bowel, as evidenced by the mitigation of all the symptoms and the presence of pus in the stools.

What shall be done in such cases? Would you operate or not? In several such cases in the county where I have been called to operate, I have declined to do so and have never regretted my decision. There is little to do in such cases. The abscess will contract and, as a rule, the opening into the bowel remain until it has fully discharged. All that is indicated in these cases is careful feeding and to keep the bowels fairly open.

This paper does not include operative cases nor the operation itself; so I say nothing on those subjects. But there are cases that have recovered from one attack or several. Shall anything beside operative treatment be done for them in the quiescent stage? Can anything be done to lessen the liability of a recurrence? This is a very difficult question to determine, as the percentage of recurrences is not fixed, and any treatment would require a large number of cases and a long number of years to establish clinically any claim to merit. Many cases recover and suffer no return. This is especially true of those severe unoperated cases when large abscesses have opened into and discharged by the bowel. In these cases the appendix is disorganized and comes away with the abscess contents, and so prevents a recurrence. As no line of treatment *ad interim* has any clinical foundation, if we are to undertake any sort of treatment, it must be based on general principles and reason.

In the milder cases, it might be well to employ moderate massage to assist the normal action of the tube in discharging its contents and keeping its lumen open, to loosen the tension of lymph bands and aid in the nutrition of its walls. As the habit of drinking freely of pure water is useful in keeping open the hepatic and renal ducts, so it is useful in preventing the formation of fecal concretions in the appendix. Therefore I would instruct my patient to drink freely of pure water. As long as any tenderness remains in the region of the appendix I should instruct my patient to take but little exercise, and to avoid heavy lifting and long journeys, either by carriage or railway, as undoubtedly these things are capable of causing an acute attack in such cases. I know of but one drug that I would consider worthy of trial in those who have recovered or partially recovered from an acute attack, and who refuse an operation during the quiescent stage. Calcium sulphide, in doses of one-half to three grains, three times a day, has a very noticeable action in reducing hypertrophied mucous membranes in the cervix, the Eustachian tube, and that covering the turbinated bones, and it is reasonable to suppose that it may have a good effect in these recurring cases wherein the patency of the canal is threatened by the swollen mucous lining of the appendix.

THE ANATOMY OF THE FIFTH NERVE AND ITS RELATION TO THE ETIOLOGY AND TREATMENT OF TRIFACIAL NEURALGIA.*

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[CONTINUED FROM PAGE 390.]

In 1843 William E. Horner's "Anatomy and Physiology" was issued. It was the second American anatomy written. **Horner** described the trigeminus as forming the ganglion of Gasser on the side of the petrous bone and then dividing into three large trunks, the ophthalmic, superior maxillary and inferior maxillary, whereas

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*Read before the Wayne County (Detroit) Medical Society.

BELL, following WILLIS' description, has the first branch piercing the dura mater. HORNER, following the dissections of the French, not only has it piercing the dura, but passing through the external border of the cavernous sinus, and penetrating the orbit through the sphenoidal fissure, on the outer side of and near the motor oculi. In its whole course it unites to the trochlearis nerve by close cellular membrane and does not give off any ramifications before it reaches the orbit, with the exception of a filament sent to the trochlearis nerve. While engaged in the sphenoidal fissure it divides into three branches. The description of the three branches are similar to WILLIS' and BELL'S, with the exception of a branch discovered by DOCTOR G. TRASMONDI, which supplies the muscle discovered by HORNER, the tensor tarsi. It may be well here to state that HORNER'S description of the three branches springing from the ganglion of Gasser is more complete than that of BELL. HORNER describes the ophthalmic branch as springing from the upper end of the ganglion; the superior maxillary branch arising from the middle of the plexus gangliformis or ganglion of Gasser. LAUMONIER discovered the intercranial anastomosis of the superior maxillary with the beginning of the sympathetic nerve. HORNER, in following the description of the French, says nothing of the deep origin of the nerves, although VIEUSSENS described it, together with the other French writers, as springing from the side of the pons Varolii.

The next American author followed HORNER'S work three years later. He was an early Philadelphia surgeon, PANCOAST. In PANCOAST'S works, printed in 1846, the trifacial nerve, or trigeminus, is described as "coming out of the crura of the cerebellum where they unite to the pons Varolii by distinct fibres." He seems to follow a closer dissection of the nerve than his predecessors. PANCOAST states that the nerve is the largest of the twelve pairs. He seems to have found in many subjects "that the cord seemed to divide into two portions, the anterior of which is much smaller than the posterior, and appears softer at its origin." He describes the nerve as "passing through a canal formed in the dura mater, near the extreme end of the anterior portion of the petrous bone, a small distance below the edge of the tentorium." PANCOAST thought, and in this agreed with BELL, that the nerve adheres to the dura mater, but does not supply it. After leaving the canal it expands like a fan but still consists of fine fibres, which were counted by SABATIER, who discovered eighty. Around the circumference of the expansion is a substance of a brownish color, into which the fibres enter. This is the semilunar ganglion or ganglion of Gasser and from it three nerves go off.

WISTAR, whom PANCOAST followed, was the first to discover that upon turning over the ganglion it was found to belong exclusively to the posterior root, which was considered the sensitive tract. The small or anterior root, which WISTAR called the motor tract, merely lies in contact with the under surface of the ganglion without passing through it, and can be traced along with the inferior maxillary nerve to the muscles of mastication. The three nerves pass off from the convex or anterior side of the ganglion, and are denominated the ophthalmic, superior maxillary, and inferior maxillary nerves. PANCOAST gives the measurement of the ophthalmic nerve as three-quarters of an inch in length, and agrees with BELL in having it pass out through the foramen lacerum. His description of the nerves arising from the ganglion of Gasser has no material change from those described by the English, French and Italian authors, or the first American author.

A few years later DOCTOR ALCOCK, of Dublin, traced for the first time the deep origin of the trifacial nerve. He published it in his "Cyclopedia of Anatomy and Physiology." A year later DOCTOR MAYO also traced the anterior root to a similar origin. In ALCOCK'S anatomy he describes the "fifth nerve, the great sensitive nerve of the head and face, and the largest cranial nerve, as analogous to the spinal nerves in its origin by two roots, from the anterior and posterior columns of the spinal cord, and in the existence of a ganglion on the posterior root." It arises from a tract of yellowish-white matter situated in front of the floor of the fourth ventricle and the origin of the auditory nerve, and behind the crus cerebelli. This tract divides inferiorly into two fasciculi which may be traced downwards into the spinal cord, one being continuous with the fibres of the anterior column, the other with the posterior column. Proceeding from this origin the two roots of the nerve pass forward and issue from the brain upon the anterior part of the crus cerebelli where they are separated by a slight interval. The anterior is much smaller than the posterior, and the two together constitute the fifth nerve, which in this situation consists of seventy to a hundred filaments held together with pia mater. The nerve then passes through an oval opening in the border of the tentorium, near the extremity of the petrous bone, and spreads out into the large semilunar ganglion of Gasser. If the ganglion be turned over, it will be seen that the anterior root lies against its under surface without having any connection with it, and may be followed onward to the inferior maxillary nerve. The Gasserian ganglion divides into three branches, the ophthalmic, superior maxillary, and inferior maxillary.

In describing the branches of the trifacial nerve no material difference is made except in describing the inferior maxillary branch, in which ALCOCK states that it "proceeds from the inferior angle of the Gasserian ganglion; it is the largest of the three divisions of the fifth nerve, and is augmented in size by the anterior or motor root, which passes behind the ganglion, and unites with the inferior maxillary branch as it escapes through the foramen ovale. Emerging at the foramen ovale the nerve divides into two trunks, external and internal, which are separated from each other by the external pterygoid muscle."

The description of the branches agrees with the previous authors and the muscles are named to which the branches are sent.

From ALCOCK's day anatomists and physiologists have studied more accurately the deep origin of the trifacial nerve, until today authors and anatomists agree that the sensory root, originates in the gray tubercle of Rolando; while the motor, or anterior root, originates from the posterior cornu of the medulla, in a nucleus of large cells wherein the tubercle of Rolando is situated. On its way forward the motor root receives some fibres from the floor of the fourth ventricle and also from the sides of the aqueduct of Sylvius.

This is as far as anatomists have gone at present, but if I mistake not the signs of prosopalgia in its various forms, sooner or later roots will be found, not springing from the tubercle of Rolando or the nucleus in the posterior cornu of the medulla only, but springing from the cells of the cerebrum, perhaps in or around the anterior and posterior central convolutions which are bounded by the fissure of Sylvius on one side and separated by the fissure of Rolando. You all know and are familiar with that form of trifacial neuralgia called by TROUSSEAU prosopalgia epileptiform. I knew of a case, an old man now dead, who was an inmate of the Ionia County House, who had a form of epilepsy associated with trifacial neuralgia. He would have spells, when the pain was the greatest, of losing consciousness for a short time. It troubled him only when he suffered from prosopalgia. Then those forms in which the nutrition of parts are involved would lead one to at least search for a cerebral origin of the trifacial nerve.

But, gentlemen, what are the causes of trifacial neuralgia?

It has been stated that pain is the cry of a nerve for food. This is, perhaps, true, and if so, we must look for constitutional and local causes. We only can cure in so far as we are able to aid nature to remove offending causes. We find women more often affected than men, though some authors deny this. We find children rarely affected, although I have treated two. It is generally limited to one side of the face, but I have seen both sides affected. It is confined generally to the superior maxillary division and its branches, more often than to the ophthalmic and inferior maxillary branches, but often it flies from one branch to the others, and it is difficult to tell which is primarily affected. When all branches seem to be affected, one is led to closely interrogate the ganglion of Gasser as its place of origin. Among the constitutional causes anemia is the most frequent cause of prosopalgia. Syphilis, malaria, and tuberculosis are causes often met with. Climate has much to do with the constitutions of people in the production of facial neuralgia.

The advent of senescence, with fatty degeneration of the tissues, and diseases of the arteries, seem to be of special importance in the origin of this affection.

Malaria generally brings supraorbital and frontal neuralgias. They generally have a periodicity and yield usually to quinia.

Colds are predisposing causes oftentimes.

As regards local causes, it would not be surprising, considering the many canals and foramina traveled through by the trifacial nerve, that disease of bones and coverings of bones, or blood-vessels which travel over the same course, would often be causes in disturbing the nutrition of the nerve. And we find this to be a fact. We find periostitis, ostitis, and tumors mechanically obstructing the trifacial nerve. Diseases in the antrum of Highmore often cause prosopalgia. Fractures through the sphenoid bone, implicating the foramen ovale or rotundum, producing some displacement and stenosis of the openings, have been known to produce trifacial neuralgia.

Wounds and foreign bodies lodged in the nerve have produced prosopalgia.

Diseases of adjoining organs constitute a very frequent cause of neuralgia of the face.

Disease of the jawbone, alveolar process and teeth often produce facial neuralgia.

Tumors at the base of the skull, or on the dura mater may produce facial neuralgia.

Aneurismal dilatation of the internal carotid near Gasser's ganglion was a cause reported by ROMBERG. This should be borne in mind when indications of atheroma and aneurismal dilatations are clearly present in the trunk of the carotid or its principal branches.

Anatomical changes in the nerve and in the brain have not infrequently been observed, partly in postmortems and partly in portions of nerves removed by resections. That there are no conditions pathognomonic of trifacial neuralgia can be seen by the various reports made by different observers. In some cases the neurilemma has been found to be thickened, swollen and reddened; such were the observations of WAGNER and PODRAZKY.

LAVERAN and PODRAZKY report thickening through proliferations of connective tissue, degeneration of the ganglion of Gasser and of the nerve trunks.

ROMBERG found flattening and atrophy of the ganglion and its branches.

ALLAN, WORMAN, and SHARP found small calcareous, inorganic deposits and concretions in the sheath of the nerve trunk or its branches.

In some cases there are no morbid changes found.

Active and passive hyperemias may occasionally cause prosopalgia. Little evidence has as yet been produced that diseases of the brain proper can cause facial neuralgia, simply by affecting the intercerebral fibres, apart from any implication of the intracranial part of the nerve.

In GROSS' "Pathological Anatomy," COTUNNI states that he often noticed a serious infiltration of the trunk of the trifacial nerve in sufferers from facial neuralgia.

GROSS speaks of LEVEQUE-LASONIER finding the trifacial nerve affected with carcinoma.

DUPUY saw the trifacial nerve transformed into cribriform substance, and the Gasserian ganglion remarkably large and carcinomatous.

BEGIN reported a ganglion of Gasser with the whole facial branch affected with carcinomatous changes.

NELATON found at its origin, as related by the early French anatomists, the trunk of the fifth nerve much enlarged, and the seat of small spheroidal tumors composed of yellow, opaque matter, evidently the nature of tubercular lesions. The subject was a woman, twenty-one years old, and it may be interesting to state that the roots of the third, seventh, and eighth pairs of nerves were alike affected. She suffered much from prosopalgia.

DOCTOR SCHIFFNER, of Vienna, now dead, reported a cretin, thirty-three years old, who suffered from neuralgia of the face, in which the postmortem showed the inferior maxillary and facial nerves, together with the eighth pair, and almost all the spinal nerves, presented numerous swellings along their trunks and branches, many of which were as large as a pea.

Irritations of the peripheral nerves often cause neuralgia, such as foreign bodies, caries of the teeth, retarded appearance of the wisdom teeth, and false development of the same; diseases of the nasal cavities, frontal sinuses and irritation of the eyes by overworking them.

CUSTER observed two cases in which injuries, in one case of the ulnar, in the other case of the occipital nerve, caused neuralgia of the face, and in which the etiological connection between the injuries and neuralgia was in both cases demonstrated.

Intestinal irritations, such as worms and well-marked constipation, often cause facial neuralgia.

Irritation of the generative organs, whether it be functional, over-excitation, uterine, or ovarian disease, many times is the originator of trifacial neuralgia.

Erb states that gout, rheumatism, hemorrhoids and suppression of the perspiration of the feet may cause prosopalgia.

Sir Henry Halford described the disease as often connected with some preternatural growth of bone, about the face or head, or a bony canal. **Gregory** knew one case, in which severe brain symptoms were present, to terminate fatally in coma, and in another by blindness.

Such, gentlemen, has been the history and pathology of trifacial neuralgia from 1746, its date of birth into medical literature, to the present day.

We will now turn to the lesions of other organs, both permanent and transitory, which follow as sequelæ to facial neuralgia.

Among the first are lesions of the iris. Iritis is not an infrequent sequelæ to prosopalgia. I have seen two cases of it, one in a child seven years old, and the other in a man forty years of age. In the case of the child, the ophthalmic branch of the fifth was the one which was affected. In her case a sudden attack of la grippe brought with it trifacial neuralgia of an aggravated type. The second day patient complained of deep-seated pain in the eye, and she would bury her face deep in the pillow. The pupil became greatly contracted, so small that one could perceive only a point in it. She suffered severely for many hours, although local anodynes controlled the pain somewhat. She recovered from the attack of neuralgia and the iritis disappeared. In the case of the man, his neuralgia came with an attack of malarial fever, which lasted six weeks. He suffered from neuralgia of the ophthalmic and superior maxillary branches. Iritis appeared during the latter part of the third week of his sickness, but entirely disappeared after the malarial fever had run its course. In both cases relief was obtained by the local application to the eye of morphia and atropia sulphate in the form of a collyrium. Internally soda salicylate relieved the intense pain over the orbital and frontal regions. In my malarial case quinia was used but in the salicylate of quinia form. I would vary my eye-drops once every third time to morphia and eserine, which I deem a proper caution.

Often the cornea becomes inflamed and cloudy in facial neuralgia, but I never knew nor have found record of a case in which the damage was permanent.

The conjunctiva, sclerotic and choroid coats may become affected and glaucoma result.

I knew of one case in which a man lost one eye from glaucoma, the result of facial neuralgia of syphilitic origin.

The pathology of these conditions rests in the fact that the nasal branch of the ophthalmic forms the lenticular ganglion with the third pair of nerves, from which spring the ciliary nerves, which accompany the ciliary arteries piercing the posterior part of the sclerotic coat, and pass between that tunic and the choroid to be distributed to the iris, and the tunics of the eye. **Tiedmann** claims that a small branch of the ciliary nerve accompanies the arteria centralis retinæ into the globe of the eye. Now, as the ophthalmic belongs to that part of the ganglion of Gasser which has no connection with the motor tract, it follows that the ophthalmic nerve with its branches and their branches must be nerves of sensation and nutrition, and we find this to be a fact.

[TO BE CONTINUED.]

RESUSCITATION OF THE NEW-BORN*.

BY JOHN J. MULHERON, M. D., DETROIT, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

A REVIEW of my own experience during the earlier years of my practice and my observations of the practice of others convinces me that the asphyxiated new-born child is sometimes declared dead and beyond all hope of resuscitation, when more persistent and prolonged efforts would probably have been successful.

A few years ago a patient of mine had a very rapid labor. It was a breech presentation, and before I was summoned the body of the child had been expelled, the head remaining in the passage; the husband and a lady neighbor were present, but neither dared to extricate the child. A physician near by was hastily called in and promptly removed it, but declared it dead and laid it away in another room. The house being distant from my office it was nearly an hour after I was summoned before I reached the patient's bedside and heard the tearful story.

The afterbirth had in the meantime been removed and the woman's toilet completed. The husband having asked me to see the child, I discovered at the first glance that it was still livid, and proposed efforts to resuscitate it; there was the faintest perceptible impulse over the region of the heart, and this fact in connection with the color of the surface encouraged me to make the attempt. After fully three-fourths of an hour of continued effort, in which various methods of artificial respiration were employed, the household was enraptured by the infant cry.

Other more remarkable cases of resuscitation than this are of record. In one case the child had been hidden in a sand pit for fully one-half hour; another had been buried under the surface of the ground for five hours, and still another was revived two or three hours after having been supposed dead and prepared for burial. **Goodell** reports a case in which two physicians had pronounced the child dead after the failure of several methods of resuscitation. It was then placed outside of the window on the roof, the night being cold; when taken in to be washed it was found to be living. In another case the child had been pronounced dead and was laid away in the corner of the room; an hour later the nurse, on taking it to the bathroom found it alive.

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* Read before the MICHIGAN STATE MEDICAL SOCIETY at the Mackinac Island meeting, July, 1900.

All these cases teach us one more forcible lesson than another, which is, that no child that does not present positive evidence of decomposition should not be pronounced dead. until after persistent, faithful and prolonged efforts at resuscitation have been made. Failure to detect the cardiac sounds or impulse, or the pulsation of the cord is not sufficient excuse for not instituting such efforts and this is particularly true in the variety of asphyxia known as asphyxia livida. In asphyxia pallida, in which there is an absolute relaxation of the muscles of the neck, the chance of success is very slight, but should it be only one in a thousand it is the duty of the accoucheur to make the most of it.

The time limit imposed on the papers submitted to this section prevents a review of the physiology of intrauterine life and of the sudden changes which take place in the establishment of the independent existence of the child; these must be thoroughly understood in order to an intelligent course of procedure in the resuscitation of the asphyxiated new-born. Assuming the possession of this knowledge I shall simply pass in review the various methods of resuscitation, not so much with the intention of presenting anything new as with the hope that such review may have that vivifying effect which our memories sometime feel the need of in emergencies.

The first thing to be done after the delivery of either a breathing or nonbreathing child is to clean out the upper air passages. The little finger usually suffices for this purpose, and when the first cry has been uttered no further efforts in this direction will be necessary. Should, however, this cry fail to be emitted within a reasonable time, say two minutes, mouth to mouth insufflation should be practiced. This is done by laying a towel over the child's lips and blowing forcibly into its mouth. It is not expected that much, if any air shall enter the lungs through such insufflation, but it is valuable as a means of expelling mucus from the nasal passages. Should abundant rales point to the presence of fluids in the larynx, trachea, and bronchi a small elastic catheter (number eight) should be passed through the glottis. This procedure is quite easy of accomplishment;

the index finger being placed behind the epiglottis serves as a guide to the passage of the catheter besides offering a ready exit for the escape of the mucus. The stimulus imparted by the presence of the catheter often produces spontaneous respiration. After the mucus has been thus removed the attempt should be made to stimulate reflex action by flagellation, and by the immersion of the child in hot and cold water. The cord should not be ligated as long as it continues to pulsate, in order that as much placental blood as possible may pass into the child. The child failing to respond to the above stimuli we must have recourse to one or several of the methods of artificial respiration.

Of these methods the MARSHALL HALL and the SYLVESTER are the first to be employed. They are too well known to require any description at this time, and I shall simply mention several other methods which I have reason to believe are not as generally known to the profession as they should be. I refer more particularly to the SCHULTZE and BYRD–DEW and the LABORDE methods.

The SCHULTZE method consists in seizing the child just below the neck, the fingers resting on the dorsum, and the thumbs on the thorax, the child facing in the same direction as the operator. The first step is the holding of the child downward, its feet touching the floor, and the second movement consists in the operator's swinging it at arm's length upwards and backwards over his shoulder. This motion is repeated about eight times a minute. Certainly a more effective method of alternately expanding and compressing the thorax has not yet been introduced. The compression of the abdomen through the flexion caused by the upward and backward movement drives the diaphragm upward, and the downward sweep favors its descent, during which the air rushes in to fill the vacuum, again to be expelled by the backward and upward swing and flexion. The impact of the air during the swing also doubtless excites the reflexes. The movement must be kept up as long as the slightest cardiac pulsation remains, and I have seen children brought to after a full half-hour of apparently useless effort. The SCHULTZE method is manifestly best adapted to cases of apoplectic asphyxia. Personally I should give preference to the—

BYRD–DEW method in cases of anemic asphyxia, principally because of the fact that it can be practiced while the child is immersed in a hot bath, heat being so important in the resuscitation of this class of cases, in which respect they differ from those of the apoplectic variety. In this method the child is held with its neck between the finger and thumb of one hand, while the nates are held by the other hand. Thus held, the body is alternately flexed and extended on itself and the respiratory movements thus imitated.

The extension must be to a degree which might be regarded as flexion on the dorsal surface. This is important, for the greater this extension the further is the diaphragm pulled down, and the greater the consequent vacuum in the thorax. The flexion must be to the extent of bringing the child's knees in contact with its sternum.

"The LABORDE method, which consists in the rhythmic traction of the tongue by the fingers covered with a thin cloth, was first used exclusively in resuscitating the drowned, those who stopped breathing under chloroform, and would-be suicides by hanging, but later it has been used successfully in asphyxia neonatorum. The number of tractions to a minute should be about twenty-five in an infant. The action results in a reflex irritation, referred to the respiratory center through the motion at the base of the tongue, the responding nerves being the superior laryngeal, glosso-pharyngeal, the lingual, and finally the phrenic.

This method of resuscitation has many points to recommend it: First, its extreme simplicity, other methods requiring more or less skill or experience. It should always be used while the body of the child is immersed in a warm bath, thus preventing chilling.

SCHULTZE's method, while most ingenious and feasible, has some drawbacks. It is very tiresome to the operator; it cannot be used where there is a fracture of the clavicle or of an extremity; it does not give good results in prematurely-born children; and in the low rooms of the poorer classes it is often impossible. SCHULTZE, himself, admits the value of LABORDE's method in mild degrees of asphyxiation, but doubts its efficiency in graver cases"

TRANSACTIONS.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.

STATED MEETING, APRIL 17, 1900.

THE PRESIDENT, CARL BONNING, M. D., IN THE CHAIR.

REPORTED BY P. C. McEWEN, M. D., SECRETARY.

EXHIBITION OF SPECIMENS.

PRACTICE OF J. HENRY CARSTENS, M. D.

HYDRONEPHROTIC KIDNEYS.

THIS specimen was removed from MRS. S., aged fifty-seven years, mother of nine children. She is the wife of an Indiana farmer, and has always been a strong, healthy woman. Nine months ago she first noticed a swelling on her left side just below the ribs, but had previously experienced an uncomfortable feeling at this point. This swelling gradually increased, developing downward and toward the right until it nearly filled the whole abdomen. It reached down to the symphysis on the right side as low as the appendix. The intestines seemed to be all shoved over toward the right. Over the extent of the growth, percussion sounds were dull, and in some places fluctuation could be detected. Her family physician thought the swollen condition was an enlarged spleen, and after examining it I thought so too. It did not extend back toward the kidney but seemed to be all in front. It might be an enlarged spleen or a cysto-sarcoma, or a hydronephrotic kidney. Having grave doubts in my mind I made an exploratory operation, being prepared to remove the growth if possible. I made an incision at the left outer edge of the rectus, from a little below the ribs downward three inches, and opened the abdomen. I then found the growth was back of the peritoneum and evidently cystic, and I concluded that I had to deal with an immense hydronephrotic kidney. On exploring the right side, I found the kidney normal. I then sewed up the incision in the peritoneum, but not the muscles and fascia. Making a transverse cut downward I could shove the peritoneum aside and get at the growth, which could be removed with comparative ease after tapping it and drawing off a gallon of fluid. This fluid was partly clear and thin and in other sections thick, just like one obtains from an ovarian tumor. Inside the tumor I found a large stone, irregular in shape, which I exhibit. The tumor was a kidney of immense size, on account of the fluid as described. I removed it and inserted a small strip of gauze as a drain, and closed the incision in the usual manner. The interesting feature in this case is the immense size of the tumor and the difficulty of diagnosticating the diseased condition beforehand.

Mrs. W., aged twenty-four, for years had a swelling in her left side, but during the last year it had grown very fast and a well-marked tumor was the result, about six inches in diameter, on the lower border of the left rib, passing down to below the umbilicus, crossing the median line toward the right. It seemed to be cystic, but was not connected with the pelvic organs. I suggested an operation, but reserved my diagnosis until afterward. Opening the abdomen at the outer edge of the rectus, on the left side, I found a large cystic growth, which was behind the peritoneum, and evidently an hydronephrotic kidney. I, however, passed my finger toward the right side and felt that kidney in normal position. I then sewed up the peritoneum and made a cross section to the incision I had already made, and gradually enucleated the growth. In order to reduce its size, I tapped it and removed a quart of thin clear liquid. I then peeled it out entire, tied off below what I considered to be an ureter, and then ligated the blood-vessels. It seems to be a hydronephrotic kidney, as you can see. Again, however, passing my hand into the opening, I was astonished to feel a normal but small kidney in the usual place on the left side. This tumor seemed to have been connected with it by simple connective tissue. I put in a small rubber drain and sewed up the opening. The woman was operated upon February 24, and has made a complete and uninterrupted recovery. I shall report in detail, at some future time, this unique case of a woman with three kidneys.

DISEASED UTERI.

This is an uterus — a total extirpation — removed by abdominal section. My diagnosis was fibroid, but the macroscopic appearance is that of a sarcoma, and I will have to await the microscopic investigation before I can decide. The operation was performed Saturday, and the patient has done well thus far.

This is a fibroid of the uterus, removed March 2, by adominal section, from Mrs. W., aged forty-three years, by the so-called Baer method, leaving in the cervix. For safety's sake I put a gauze drain in the posterior cul-de-sac. She has experienced an uninterrupted recovery.

Here is an uterus, containing a fibroid, removed by vaginal hysterectomy. You would hardly think it possible to remove such a large tumor by vaginal hysterectomy, yet the technique of that operation has been so simplified and perfected that almost any fibroid can be removed that way by morcellement, but I only remove such as can be removed without cutting. Where they require cutting, I would rather trust the abdominal method.

AN HEMATOSALPINX.

This is from Mrs. S., aged thirty-six years. This woman had been ailing for eleven years, and in bed three and four months at a time—a chronic invalid—suffering from inflammation in the pelvis. I supposed patient had a pus-tube and did a vaginal hysterectomy, but found she had a large hematosalpinx instead with extensive adhesion and inflammation all around it. It was removed with difficulty February 12. Patient has made an uninterrupted recovery.

This is a perfect type of cauliflower malignant growth of the cervix, for which I recently did a vaginal hysterectomy on Mrs. N., aged forty-three years. She made an uninterrupted recovery. On account of the extensiveness of the growth, one is never sure that the patient may not have a recurrence.

KIDNEY WITH INTERSTITIAL ABSCESSES.

Mrs. B., aged twenty-eight years. Two months ago, I operated upon her, incising the kidney and draining it for the purpose of removing an immense accumulation of pus, with the expectation of doing a nephrectomy later on. The improvement was remarkable. The patient gained in strength but the incision did not close up, as the trouble was evidently tubercular. She returned to Saint Mary's Hospital, and I operated upon her February 3, removing the left kidney, which contained any number of interstitial abscesses, and she made an uninterrupted recovery. The most distinctive feature following the removal of the kidneys, I have found, is the most voracious appetite these people develop.

AN OVARY AND TUBE.

HERE is an ovary and tube I removed from MRS. B., aged twenty-six years. She also had fungoid degeneration of the uterus and lacerated cervix, for which I cureted the uterus and sewed up the cervix. I then opened the abdomen, removed the right tube and ovary and stitched the stump in the lower angle of the wound for retroversion of the uterus. She had severe pain in the right side in the region of the appendix, so that I thought it best to also remove the appendix while I was doing the other operation, which I did, so that I really performed five operations upon her at one time, all of them taking only about twenty-five minutes.

A CONSTRICTED APPENDIX.

HERE is an appendix removed from MR. H., who had been suffering from severe pain in the region of the stomach, like appendicular colic, which was attributed to gall-stones and almost everything else, but was undoubtedly due to a constricted appendix, the removal of which cured the case.

TWO UTERINE POLYPS.

NOT for three or four years have I seen a case of uterine polyp. They are easily and quickly removed and hence taken care of by the general practitioner, as is perfectly proper. But in this case the patient, who came from Little Rock, Arkansas, had tried an operation which failed. The doctor could not remove the polyp. He made an incision in the cervix, but evidently weakened and gave it up for fear that he would invert the uterus and do serious damage. He showed good sense, as it is not an easy matter if you have not facilities and the patient is not in a hospital. So the patient came up here and I removed the growth March 2. As it was large, I quickly cut off sections until I reached the pedicle, and thus removed it without much trouble and without incising the uterus. She made an uninterrupted recovery.

Here is another uterine polyp taken from MRS. R., aged thirty-six years. These two patients both came to my office the same afternoon. I easily removed this growth with the scissors, and thus operated upon two cases of a not uncommon kind. I have seen only these two cases for years.

PRACTICE OF WILLIAM F. METCALF, M. D.

UTERUS AND TUBES.

Miss L., aged twenty-one years, was operated upon for tubercular peritonitis last April. She said that twelve pounds of fluid was removed. She was referred to me for the cure of a fecal fistula through the abdominal scar (the former incision healing by granulation). Upon opening the abdomen I found coils of small intestine, tubes and ovaries and uterus forming one mass, which were separated with considerable difficulty. A loop of the ileum was found encircling the right tube and ovary which, as you see, form a tumor greatly enlarged by encysted peritoneal fluid. The loop of ileum was adherent to itself at the upper side of the tumor where it was adherent to the abdominal wall and at this point the fistula occurred. The union to itself was so firm that it appeared to be a constriction which would necessitate removal and anastomosis, but further dissection of the adhesions with the scissors revealed the true condition. I closed the fistula, removed the uterus and its appendages and closed the abdominal wound with buried suture. As you see the uterus and appendages are in one piece, bearing their normal relation to each other. Subsequent adhesions will be prevented by the coaptation of the peritoneal edges by a continuous suture across the pelvis.

The patient is in excellent condition tonight, everything pointing to rapid recovery.

STONE FROM KIDNEY.

Mrs. B., aged thirty-eight years, had pain in the left side for about twelve years. During the last three years it was much greater and at times was spasmodic, following the course of the ureter. It was increased by motion or pressure. She says that she never passed blood with the urine. Micturition became frequent and painful. When I first saw her November 26, her temperature was 100.4°, pulse 102. Examination of the urine showed the presence of pus, renal epithelium and ammonium phosphates. Its specific gravity was 1018. November 29, I used Harris' apparatus. The urine taken from the left side of the watershed showed renal epithelium and pus in quantity; that from the right side showed small quantity of renal epithelium and pus corpuscles. The sulcus upon each side had been washed but perhaps not thoroughly enough. To determine beyond doubt the health of the right kidney it was necessary to pass the ureteral catheter which I did on December 1. Inflammation had extended from the bladder wall up the right ureter, so that I would have gotten pus with the Harris' apparatus, no matter how thoroughly the bladder may have been washed. On December 4, I performed nephrotomy, finding this stone which is three and one-half inches long and four and three-fourths inches in circumference at the middle. It is composed principally of uric acid and calcium phosphates. Its weight is two and three-fourths ounces. The patient is now sitting up and the opening leading to the kidney is closing rapidly by granulation.

PRACTICE OF FRANK D. SUMMERS, M. D.

INTERSTITIAL FIBROID OF THE UTERUS.

MRS. H., aged forty-three years. Patient's menstruation has been regular and normal in quantity until a few months ago, when she began to experience a marked tenderness over the uterus with menorrhagia, which was so severe at her last period that I was summoned to see her. Upon examination I found the interstitial fibroid tumor that I exhibit here this evening. I advised her to enter Saint Mary's Hospital for an operation, to which she consented. I operated December 21, entering the abdominal cavity through the median line. I opened the uterus through the fundus, enucleated the tumor, stitched the uterine walls together with a double row of catgut sutures and made a ventrofixation with drainage at the lower part of the abdominal wound. Patient has just passed her first week following the operation and indications are favorable for a complete recovery. Today her temperature is 99° Fahrenheit and the highest has been 101.6°.

SPECIMEN OF EXTRAUTERINE GESTATION.

MRS. W., aged forty years. Patient has no children but has had two miscarriages. She menstruated regularly until October last when her menses were absent for three months, after which they appeared, but with irregular flow and nausea, although she experienced no pain. In January she had pains and some flow with extreme nausea and a very severe collapse which lasted for several days. She rallied and was once more about the house. Pregnancy was diagnosed and found to be located entirely to the right of the uterus. She told me that she had had the left tube and ovary removed two years before for extrauterine gestation on the left side. Two weeks ago she had a return of extreme nausea, pain and collapse, and as soon as safe to do so I sent her to Saint Mary's Hospital and operated upon her November 4, and found the large specimen that I exhibit here this evening of extrauterine gestation.

PUS TUBES FROM TWO WOMEN.

I WISH to show the society the specimens and the comparative temperatures of two pyosalpinx cases operated upon by me at Saint

Mary's Hospital, September 27. The operations were performed by the two methods adopted by all gynecologists, that is, the abdominal and vaginal. You will see by the chart before you that the temperature of each case when admitted to the hospital was above 100° and nearly the same in each. You will also see by the chart that following the operation on these two cases, which were operated upon the same day, the daily temperature ran about the same. In both cases the pus-tubes which were very large ruptured while breaking up the adhesions. The patient that had the vaginal operation sat up on the tenth day and left the hospital on the thirteenth day. The other patient that had the abdominal operation sat up on the thirteenth day and left the hospital on the eighteenth day. You will see that the highest temperature was 101.4° Fahrenheit. I favor the vaginal operation whenever it can be done.

CORRESPONDENCE.

HOW TO STRENGTHEN THE STATE MEDICAL SOCIETY.

BATTLE CREEK, MICHIGAN,
September 1, 1900.

EDITOR OF The Physician and Surgeon:

APROPOS to the article in the August number of your journal from DOCTOR DAVID INGLIS, entitled "The Mackinac Meeting of the State Medical Society," in which he asked for suggestions, I should like to state that, when one year ago at Kalamazoo I offered an amendment to the constitution allowing members who had been suspended for nonpayment of dues to re-enter the society on the same condition that new members are allowed to enter, I felt that I was doing only what good business and common justice between man and man demanded. Imagine, therefore, my surprise at the Mackinac meeting to find a large number of the old members arrayed in solid phalanx against the resolution and actually by parliamentary tactics, introducing motions "to table" or calling for the "previous question," cutting off debate and securing its defeat. My surprise at this action "great though it was" dwindled into insignificance when compared to the surprise that came to me a little later on learning of the widespread misunderstanding of the actual working of the particular by-law that such an effort was put forth to retain.

The only argument that I have ever heard against the resolution is "that it is unjust for those members who pay their dues, to be obliged to bear the expense and burdens of the society while those who do not pay enjoy its privileges for three years at least without paying for them. Therefore, when they wish to re-enter the society they should be compelled to pay, at least, the amount of the dues for the three years they were carried before they were dropped."

If this statement represented the exact working of the by-law under consideration, the argument would be unanswerable, but the facts, unfortunately, do not bear out the assertion. The only benefits to be derived from a membership in the State Medical Society are attained by attendance at the meetings or by receipt of the "Transactions" for that year. I think it can be assumed that practically all who attend the meetings pay their dues at that time and therefore are not suspended. It is also equally true that, contrary to the widespread misunderstanding on that point, *the "Transactions" are never sent to any member until the member has paid his or her dues for the current year.* Therefore, when a member fails to pay his dues for one year it is *prima facie* evidence at least that he did not attend the meeting for that year and derived no benefit from that source. It is also *de facto* evidence that he did not receive the "Transactions" and therefore received no benefit from that source. The "Transactions" of the Society are not for gratuitous distribution and for that reason are only sent to *bona fide* members. Surely one who does not pay his dues cannot be considered *bona fide* and manifestly is not entitled to the "Transactions," and he does not get them. As one gentlemen put it to me, "We buy the "Transactions" and pay for them, and if we do not pay for them we do not get them."

So far from the fact is the statement that the member dropped for nonpayment of dues does the society an injustice by coming back on the conditions governing the admission of new members that the reverse is true. If we could admit that he ever really owed the society any back dues, we must also admit that by dropping him the society cancels the debt, and from that time it is no more collectable than any other canceled debt or obligation. Also, by coming in as a new member and paying another admission fee he complies with all the requirements of the society. But collecting the dues accrued before he was dropped as a condition to allowing him to make a new application for membership is simply demanding the payment of that much money for which we have given nothing in return, and for which he has received no value, not even the "Transactions" of the society. Further, and the most unjust of all, is the collection of another admission fee. When he has paid all back dues equity demands that he be reinstated forthwith and without paying another admission fee, which under these conditions can only be looked on as a bonus.

Feeling in this way, is it any wonder that gentlemen so often refuse to come back into the society when once dropped for nonpayment of dues? Has the society ever considered what it means to have a large and constantly increasing number of eligible practitioners of medicine in the State of Michigan manifesting a feeling of coldness toward the State Society? It was a feeling similar to this that caused the estrangement of the New York State Medical Society from the American Medical Association. It is this conditon that brings with it a danger that at some time some of these disaffected ones may perfect an organization and present a spectacle that may or may not be a credit to the profession of the State of Michigan.

Surely there can be no quicker or better way to strengthen the State Medical Society than to pass this amendment next year in Battle Creek and thus open the doors to that large number of suspended members who are willing to come back as soon as the way is opened for them to come on terms that they can accept.

W. H. HAUGHEY, M. D.

REORGANIZATION OF THE STATE MEDICAL SOCIETY.

DETROIT, MICHIGAN,
September, 16, 1900.

EDITOR OF The Physician and Surgeon:

I AM very glad to embrace the opportunity, given the profession by The Physician and Surgeon, to take part in the correspondence which has so happily been inaugurated by DOCTOR DAVID INGLIS, of Detroit. It appears to me that the doctor is right and that he has touched the keynote in expressing the wish that the Michigan State Medical Society shall become a power in the State. This can easily be accomplished, if we only follow the example set by the medical profession in New York State.

Undoubtedly many of your readers are acquainted with the editorial in *The Philadelphia Medical Journal* of July 21, 1900, and with the editorial in *The Journal of the American Medical Association* of July 28,1900. The first editorial speaks of the reorganization of the New York State Medical Association and tells us that "efforts are now being made to completely reorganize the State Medical Association and its affiliated county associations into what will practically be one harmonious, smoothly-running body, having for its object the cultivation and advancement of the science of medicine, the promotion of public health, and the establishment of a death-benefit fund for the dependents of its members." We are told that "all of the county associations previously affiliated with the State Association have already voted unanimously to become parts of the new organization, and new associations are being organized in counties in which the State body has not been actively represented. As an indication of the popularity of the movement it may be noted that in several counties in which no local association existed, but in which county societies had been established, by practically unanimous vote of the members, charters from the governing body have been surrendered and application made to the State Association to take them into the fold. The membership of the State Association has increased from about five hundred in April last, to nearly fifteen hundred on July 1st."

In brief, the plan may be outlined as follows: The sixty-one counties of the State have been grouped into five divisions, each division being represented by a branch, or district association, the membership of which is made up of the members of all the county associations in the district. A person will be ineligible to membership in the State Association unless he is already a member of a county or district association. Membership in either of these carries with it membership in the State Association as well, and this is the keynote to the entire scheme. Each county and each district association will elect its own officers and adopt its own by-laws, the latter being in conformity with the constitution of the State Association. The presiding officer of each county association will appoint committees on legislation, public health, and on ethics and discipline, each being subservient to and working in accord with like committees of the State Association. The local committees on ethics and discipline will pass on all charges and complaints against members, their findings being subject to the approval of their local association, but the rulings of the latter will be reviewed and final disposition of cases made by the Council of the State Association if appeal is made by the member against whom decision has been rendered. Each county association, at its annual meeting, will elect one delegate and one alternate to serve on the nominating committee of its district association, and one member for each ten of its membership or fraction over five to a fellowship in the State Association. The fellows, so elected in conjunction with the members of the council will direct the affairs of the Association. The council will consist of the officers of the State Association and the presidents of the five district associations. The duty of the nominating committee of each district association will be to nominate a full list of officers for its district organization to be elected at the annual meeting and to elect two fellows from all of those previously elected by the county associations, as members of the nominating committee of the State Association. It is purposed to make the initiation fee ten dollars and the annual dues the same amount, these covering membership in the three organizations—State, district and county. Each initiation fee will be added to the permanent fund of the State Association. Of the annual dues of each member, two dollars will be deposited in the treasury of the local county association, fifty cents paid to the district association, fifty cents retained by the treasurer of the county association as compensation for his services, and the balance, seven dollars, forwarded to the treasurer of the State Association. The annual dues of members assures to them the receipt of a copy of the "Medical Directory" of New York, New Jersey and Connecticut, the publication of which was begun last year, and of the "Transactions" of each annual meeting, without additional charge. A member resigning from any county or district association ceases at the same time to be a member of the State Association. Members will be subject to expulsion for any one of three reasons: nonpayment of dues, violation of the code of ethics, and commission of a crime."

No doubt this plan is an excellent one, although it might be somewhat modified, especially in regard to the amount of dues.

Doctor Wiggin, of New York, chairman of the committee on arrangements of the New York State Medical Association, wrote me under date of August 28, 1900, in part as follows:

"The chief points in our scheme are that every member of the county association becomes a member of our district branch and state association; one set of dues will be collected by the county treasurers and divided in certain proportions among the societies making up the organization; the government of the state body to be carried on by specially chosen members of the county associations at their annual meetings, in the proportion of one to every ten of membership, to be known as fellows; these gentlemen also to be our delegates for that year to the American Medical Association; and a body known as the council, which will be made up of the titular officers of the state association, plus the presidents of the five district branches. The advantages to members to be a closer and more effective organization, the protection from suits for alleged malpractice, the death-benefit for the dependents of deceased members, in addition to the advantages of membership, and having a copy of the 'Transactions' and the 'Medical Directory' furnished free of cost."

This plan or a similar one should be brought up for consideration at the next meeting of the State Medical Society, and I hope, as a member of the legislative committee of the Michigan State Medical Society, to interest the committee and through the committee the society in this plan. Meanwhile the matter could be taken up by local societies and individual physicians.

Very respectfully yours, Emil Amberg.

32 Adams Avenue, West.

EDITORIAL ARTICLES.

THE MODERN MEDICAL COLLEGE.

The month September, in reopening the hundred or more medical colleges in these United States, is suggestive of many topics relative to medical education and among others the great contrast between the earlier and the modern medical colleges. Historically considered it is not long since BARD, CADWALLADER and WILLIAM SHIPPEN, Junior, first gave their lectures on anatomy in New York and Philadelphia. Incomplete, irregular and brief as they were on account of the innovation against popular prejudice and the exigencies of the revolutionary conditions, they were nevertheless great opportunities for many students of medicine at that time, who were unable to afford the advantages of European schools, and were therefore by them thoroughly appreciated. The establishment of the University of Philadelphia and of King's, Harvard and other colleges with their medical departments are matters of historical interest, but of them all it must be said that they offered, for many years, in the way of medical instruction little more than the didactic lecture illustrated by charts and models and a meagre supply of material for surreptitious dissection. There was in fact nothing more to offer. It was not a difficult thing therefore, as the larger cities grew up, for several physicians to organize themselves into a faculty of professors, build an amphitheatre where all classes of students could be crowded together for the lectures and clinics, and lay out a room on the top floor for anatomical study. In this way the whole country has been dotted with medical colleges.

It is within the memory of all but the later graduates in medicine that the medical college curriculum has been greatly extended. The study of chemistry, the discovery of anesthesia, the microscope, LISTER, bacteriology and the development of the other newer sciences have all together worked wonderful changes in medical education and among the institutions that furnish the means for its acquisition. The foundation of a medical school is now a more difficult undertaking than presented a few years ago. The amphitheatre, the pride of former years, is a thing of the past. In its stead are rooms for the individual classes. Freshmen and Seniors no longer hear the professor of surgery and see the chemical experimenters from adjacent benches, but the two courses of lectures, usually repetitions, have been rearranged into four years of consecutive, graded work. The dissecting room is a model of its kind, and more abundantly supplied with selected material. There are moreover several other laboratories fully as important, each one of which has necessitated for its establishment the outlay of a considerable sum and requires for its management the expense of special instruction. The proper teaching of histology, pathology, physiology, bacteriology, chemistry and surgery, necessitates the purchase of microscopes with a variety of objectives and eye-pieces, oil-immersion lenses, microtomes, stains, all of the best quality, specimens and specimen cases, glassware of many descriptions, thermostats, sterilizers, mice, rats, rabbits, guinea pigs, dogs, frogs and other small animals and cages for their care, hematometers, hemoglobinometers, albuminometers, saccharometers, electrical apparatus and other devices for measuring blood pressure, nerve stimulation, et cetera.

All of these things, together with the conveniences of a large hospital have become through medical progress necessary to the proper equipment of a modern medical college. The didactic lecture still remains, but it has been superseded in importance by the laboratory and the clinic. In the laboratory the student familiarizes himself most intimately with the facts and principles of his subject, and in the clinic he sees them portrayed in living but diseased bodies.

THE RUTLAND SANITARIUM.

THOSE who favor State hospitals for consumptives must point with considerable satisfaction to the results of the first year at the Rutland Sanitarium. Despite the low altitude and the rigorous New England climate this hospital, located in central Massachusetts, stands for the benefit of hygenic measures intelligently supervised under State control for the consumptive sick. It was opened in October, 1898, and during the first year discharged 115 cases. In a recent communication DOCTOR BOWDITCH has reported the results of treatment. Of the whole number discharged forty-six per cent. were much improved and thirty and nine-tenths per cent. were arrested cases, that is those patients in whom all active symptoms had disappeared and who were considered restored to health even though abnormal sounds remained. The original intent of the institution was by no means a home for consumptives, but rather as a hospital where incipient cases could be treated with reasonable hope of radical improvement. As a matter of fact it has been confessed that at first many cases of advanced disease were admitted for whom only temporary improvement could be secured. From this it may be presumed that a more careful selection of cases in the future will make possible even a better showing of the benefits received. The effect of such an institution upon the community at large cannot help but be great. Besides the individual help to health and happiness obtained and the restoration to the State of useful citizens the educational influence which must follow the exodus of patients benefited every four months cannot but ameliorate the conditions of many others with whom they come in contact. The example of Massachusetts has already been followed in Indiana and other States, and it may be surmised that before long public recognition shall be quite generally given to the advantages of this method of inhibiting the white plague over the usual means in private practice.

ANNOTATIONS.

THE INTERNATIONAL CONGRESS OF MEDICINE.

The Thirteenth International Medical Congress convened in August in Paris, where it was inaugurated in 1867. Of the twelve thousand members and delegates who were expected only about one-half were present. Among these, however, were **Lord Lister** and many other notables. The utility of this organization has been the subject for diverse comment among several of the medical journals, the weight of opinion, being in its favor. *The British Medical Journal* aptly describes the work of the Congress as scientific stock taking on a large scale. The next meeting will be held in Madrid in 1903.

OPERATIONS PERMISSIBLE DURING PREGNANCY.

On account of individual idiosyncrasies it is hardly to be expected that ironclad rules can be formulated with respect to operations during pregnancy. The surgeon and the obstetrician viewing a certain case from different standpoints will naturally attach different degrees of importance to the several factors involved. For instance, the possibility that large hemorrhoids may slough during labor is strong enough to move **Noble** to active interference, while most obstetricians would fear the induction of premature labor. Again, the necessity of removing a fibroid tumor may appear to the former and not to the latter. Each case will deserve separate consideration but in general all conditions which invite abortion or obstruct labor or threaten life should be met with courage and treated with diligence.

MEDICAL NEWS.

THE DETROIT PLAN.

Some of the physicians of Detroit do not propose to longer neglect the advantages of protection by combinations and are endeavoring to institute a Physicians' Business Association. The main objects of this organization are to institute a scale of minimum prices for professional service, to provide against the practices of deadbeats by a systematic collection of tardy accounts, to govern medical charities and to insure the families of deceased members against possible want. The plan of organization thus far has been to canvass the several wards separately and after nine-tenths of the physicians have subscribed to the plan a permanent society of all will be founded. The membership is intended to include not only the regular profession, but also the homeopathic and all other pathies in actual practice.

REGARDING THE DEMISE OF DOCTOR DAY.

WHEREAS, DOCTOR PAUL M. DAY, a member of this society, departed this life on August 1, 1900, at the early age of twenty-nine years; therefore

Resolved, That the Wayne County Medical Society deplores his loss to the society and the medical profession, and extends to his family its sympathy and condolence.

The deceased, after graduating from the Detroit High School, entered the State University, taking the degree of Bachelor of Philosophy in 1893, and subsequently pursuing studies in the medical department during 1893–94. He received the degree of Doctor of Medicine from the University of Pennsylvania in 1895. After graduating he immediately began general practice in the city of Detroit, and by his energy and ability soon succeeded in acquiring a large clientele. His talents and tastes led him to give special attention to surgery, in which department he attained unusual success for a young man.

Committee:
SAMUEL BELL, M. D., Chairman.
C. HENRI LEONARD, M. D.
HENEAGE GIBBES, M. D.

DETROIT, MICHIGAN, September 13, 1890.

RECENT DEATHS OF DISTINGUISHED PHYSICIANS.

DOCTOR ALEXANDER JOHNSTON CHALMERS SKENE, of the Burrough of Brooklyn, New York, died very unexpectedly of an ailment of the heart at his summer home at Highmount, in the Catskill Mountains, July 4. He was born in the Parish of Fyvie, Aberdeenshire, Scotland, June 17, 1838, and came to this country when nineteen years of age. Soon after his arrival he entered the medical department of the University of Michigan, and completed his course at the Long Island College Hospital, where he obtained his medical degree in 1863. Immediately afterward he entered the Civil War, and while serving as surgeon at the front evolved a plan for a hospital corps which is in vogue today in the regular army and the national guard. At the close of hostilities he returned to Brooklyn and engaged in the practice of medicine. He was soon appointed adjunct professor of medicine at the Long Island College Hospital, and later was made professor of Gynecology and Dean of his alma mater, positions which he ably filled many years, but he severed his connection with the college about one year ago that he might direct all his energy to the establishment of the Skene Hospital for Self-Supporting Women, which it was his intention to open this fall. As a teacher of gynecology, Doctor Skene enjoyed the reputation of being practical and comprehensive. He was often likened to the late Professor Corydon L. Ford in the particular of making a deep impression on the mind of his student by employing any convenient object to illustrate his subject. At one time he was professor of Gynecology in the New York Post-Graduate Medical School and Hospital. He was a corresponding member of the Detroit Gynecological Society, and at one time and another had a connection with about eighteen other medical societies and eight dispensaries, hospitals and colleges. He was the sole author of six books and department editor of two others. At different times he was the editor of three medical journals, author of about one hundred papers and addresses, and the inventor of twenty-five or thirty surgical instruments. Besides his work in the field of medicine he possessed a genius for sculpture, and the marble bust of Doctor J. Marion Sims, which for years adorned his parlor, was one of the products of his hands. His great success was due to various causes, but one that figured conspicuously was his loyalty to brother practitioners. It is said that "no physician ever called him in consultation to experience subsequently either the loss of his patient or the diminution of his respect."

* * *

DOCTOR JOHN ASHHURST, JR., aged sixty-one years, died at Philadelphia June 7, from the effects of an apoplectic stroke which he received in August, 1898. He was born at Philadelphia in 1839, and graduated from the department of liberal arts of the University of Pennsylvania in 1853, receiving the degree of A. B. in 1857, and those of A. M. and M. D. in 1860, from the same institution. He was initiated in practice as resident physician at the Pennsylvania Hospital, and shortly after the outbreak of the Civil War, was commissioned acting assistant surgeon, and detailed in charge of Cuyler General Hospital, Germantown, and from 1862 to 1865 he rendered service here and at the Chester United States Army General Hospital. He served a number of the Philadelphia hospitals in the capacity of surgeon until 1877, when he was elected clinical professor of surgery in the medical department of the University of Pennsylvania, and surgeon to the University Hospital. A decade afterward he obtained the position of surgeon to the Pennsylvania Hospital, and a year later was appointed to the John Rhea Barton professorship of surgery in the University, which position he filled until the close of the last academic year. He was well known as an author and editor of medical papers and books, "The Principles and Practice of Surgery," "Injuries to the Spine," and "International Encyclopedia of Surgery" being prominent among the latter. From 1870 to 1877 he was president of the Philadelphia Pathological Society, and during 1890 swung the gavel at the meetings of the College of Physicians of Philadelphia, having already been vicepresident of the Philadelphia Academy of Surgery, of the American Surgical Association, and of the Surgical Section of the International Medical Congress, besides enjoying a membership in many other medical societies. In 1895 the honorary degree of Doctor of Laws was conferred upon him by Lafayette College. Notwithstanding the fact that he had much in medicine to occupy his attention, he was enrolled in several scientific societies, and closely identified with various charitable institutions.

* * *

DOCTOR HUNTER MCGUIRE, of Richmond, Virginia, the foremost surgeon of the south, died September 19, at his rural residence near Richmond. The cause of his demise was exhaustion from hemiplegia, an attack of which he suffered about six months ago. The doctor was born at Winchester, Virginia, October 11, 1835, and received his early and medical education in his native city, graduating as a Doctor of Medicine from the Winchester Medical College in 1835. The following year his professional knowledge was enriched by a course at Philadelphia, after which he embarked in practice at Winchester, assisting his father, Doctor Hugh H. McGuire, who rendered service to a large clientele, and also filling the chair of anatomy in the Winchester Medical College. Three years later he resided temporarily in Philadelphia, and during the Civil War distinguished himself in the confederate army as chief medical officer on the staff of General Stonewall Jackson. In 1865 he settled in Richmond, and soon became a leader in medical thought and practice. In 1869 he was elected to the presidency of the Richmond Academy of Medicine, and later was made vicepresident (1876) of the International Medical Congress, and president (1892) of the American Medical Association. He was also president of the Association of Confederate Officers. He was instrumental in founding and fostering the University Medical College of Richmond, and the development of this institution, with which he was also identified in the capacity of teacher, seemed to be his chief ambition. As a voluminous and authoritative writer on surgical subjects, a prominent medical educator, and a conservative counsellor, he exerted a wholesome influence on the progress of the profession.

* * *

DOCTOR JACOB M. DACOSTA, of Philadelphia, died suddenly of cardiac disease on the evening of September 11, at his Villa Nova country home in the vicinity of the Quaker City. The doctor was born on the Island of Saint Thomas, West Indies, February 7, 1833. His literary and classical education was received in Germany, and his medical studies were pursued at the Jefferson Medical College, where he obtained the degree of Doctor of Medicine in 1852. After spending two years in observation and study in Paris and Vienna he returned to Philadelphia and began the practice of his profession. In 1864 he was appointed lecturer on clinical medicine in the Jefferson Medical College, and during the same year issued his classical work on "Medical Diagnosis," which has passed through nine editions. In 1872 his alma mater elevated him to the professorship of the theory and practice of medicine in which capacity he labored until a few years ago, when he asked to be retired, at which time he was made emeritus professor of medicine and of clinical medicine. He was a fellow of the College of Physicians of Philadelphia and was honored with its presidency for several years. Doctor DaCosta had spent the summer at York Harbor, Maine, and was apparently in excellent health when he returned home.

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DOCTOR PAUL GIBIER, of New York City, was killed in a runaway accident at Suffern, New York, June 9. The catastrophe occurred in the vicinity of his hospital for the preventive treatment of rabies. Deceased was a native of France, October 9, 1851, being the date of his birth. He obtained his medical degree from the University of Paris in 1884, and subsequently served as assistant at the Pasteur Institute. He achieved some renown, while studying cholera and Ferrau's preventive inoculations in Spain. This was his first public work. In 1888 the French government sent him to Havana to study yellow fever, and on his return he sojourned awhile in New York and probably decided to make the metropolis his future home, as he located there one year later and established a small hospital, which was afterward enlarged, and a few years ago removed to Suffern.

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ORIGINAL CONTRIBUTIONS.

ADDRESSES.

SHOULD THE LAITY BE EDUCATED IN MEDICAL MATTERS?*

BY CARL BONNING, M. D., DETROIT, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

ABOUT a year ago DOCTOR T. A. McGRAW read a paper before our society, entitled "The Question of Educating the Laity in Medical Matters." This paper impressed the subject of which it treats so forcibly on my mind, that I thought I could not take a better topic to discourse upon for my annual address than the one in question. I think this subject is of such vital importance to the medical profession, as well as to the teachers in our public schools and the laity, that by laying my views in this matter before you tonight I hope I may aid somewhat in bringing about a still more active contemplation of this whole matter.

Probably at no time in the history of the human race has there been such a universal desire for more knowledge, enlightenment and information on all imaginable subjects, amongst all classes of people and society, as at the present age. We may point with pride to the fact that among all civilized nations today the public schools are open to every one, male or female, rich and poor alike; and it is the great aim of all progressive communities to make all instruction in the schools as thorough and practical as possible.

Perhaps in no country has the educational system, during the last one or two decades, made such wonderful strides towards perfection as in our own. In our practical age many useless studies, with which the intellect and the memories of our forefathers were unnecessarily taxed and burdened, have been dropped entirely from the curriculum of our schools, and instead subjects of study have been introduced, which help to make the life of mankind more profitable, useful, bright, happy and healthful. And there is certainly no other topic of which the average human being, even at this day, knows so little, and yet of which every one ought to be informed to the fullest extent, as a knowledge of the human organism and its functions, and how to preserve the same in a healthful state.

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*President's address before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

The question, "Should the Laity be Educated in Medical Matters?" I answer, therefore, with a most emphatic "Yes." By doing so I do not wish to convey the idea that I intend to make a medical expert out of every man, woman or child, but to impart such knowledge to the public in general as will teach each individual how to live as healthy a life as possible; how to avoid infection from contagious diseases; what to expect from the medical profession in the way of preventing and curing diseases; and how to aid the physicians, rather than to obstruct them, in their efforts at doing their utmost best for the public welfare. To this may very well be added the imparting to the laity of a fair knowledge of the human body, and such biological and physiological facts as may aid the people in arriving at a clearer understanding of life in health and disease.

When, how and by whom shall such knowledge be imparted to the public? I think that we cannot commence too early to acquaint the children in school with such subjects in medical matters as their young minds will comprehend; and whilst the school teacher will be sufficiently trained to teach such subjects in the lower grades, in the higher grades, and especially in the high school, these teachings might profitably be supplemented by lectures or special addresses to be delivered by physicians who, on account of their special training and fitness, should be appointed by the school board, and should constitute a part of the teaching force. In studying zoology and botany in school, much valuable information might be gathered by the children by pointing out to them that the same biological laws and forces operate in man as well as in animals and plants, and that in his anatomy and physiology, man varies but very little from the higher forms of animals. Even to younger children, the ways by which contagious and infectious diseases are spread can be made reasonably clear. The fact that those children who come from homes where contagious diseases are prevalent are excluded from school, can be made to serve as an object lesson; also, the fact that every child must have been vaccinated before school will be open to him or her, may be taken as a text, how some diseases can be prevented.

In the last grade before high school, it might be well to have separate lectures for boys and girls, on subjects pertaining to the generative organs and functions. Woman physicians should be employed to deliver these lectures before the class of girls. By treating on these topics during the last year before entering high school, we will reach a much larger number of pupils than we might later on. In these lectures the boys, and especially also the girls, ought to be warned against the many dangers that will beset them before long. I am perfectly convinced that a very great number of young girls who become the victims of unscrupulous villains and designing rascals do so from sheer ignorance, and many a simple-hearted and pure young girl would have been saved from a life of ruin and disgrace if, just at that time, when the child develops into young womanhood, some true and kind-hearted woman would have pointed out to them the dangers ahead of them. I think especially in this line immeasurable good can be done by the woman physicians who should be entrusted with this work.

In high school a more extended course in human anatomy and physiology might very properly be made a part of the curriculum, and hygiene should certainly be taught here very extensively by competent teachers. Here also should the pupils be made acquainted with the fact that it is much easier to prevent disease than to cure it, and practical rules, how to avoid as much as possible all preventable diseases, should be given. I should certainly also want to see a short course on "First aid to the injured, with practical demonstrations," added to the teachings of the higher classes of our public schools.

Then there ought to be arranged in each community, every now and then, a series of popular lectures on medical topics to which the public, and especially the school-teachers, should be invited. These lectures might very properly be prepared by the local medical societies or health boards. In cases of impending epidemics of dangerous diseases, or where an outbreak of such has already occurred, much valuable information and knowledge might be communicated to the public by short articles published in the daily newspapers, and prepared especially for this purpose by the authority of either the board of health, the medical societies, or the local physicians.

It might also be pointed out to the public in this or a similar way, that there are diseases which cannot be cured even by the most skillful and learned physicians, and that a person suffering from either an acute or chronic illness can do no greater harm to himself or herself than by constantly changing physicians. We ought to educate the public not to be guided in their estimation of the skill of a physician by the gossip of some well-meaning but ill-advising friend, or too solicitous neighbor, but to consider every properly educated physician worthy of confidence and trust.

If we admit that the healthiest individuals will have the greatest chance to succeed in the battles of life, and that the enjoyments in the fruits gathered in our daily labors will be most abundant to those whose health is as nearly perfect as possible, then truly we as physicians can confer no greater blessing on mankind than to teach and educate them to be healthy. Our main object as physicians must forever be, not only to try to cure the sick, but to instruct and educate the healthy born individual how to preserve this health during life. Great strides have been made during the last few decades of our waning century towards reaching this goal, for at no other time in the history of mankind has there been so much true knowledge gathered and disseminated as at present. Superstition and ignorance, which have always been the bane of mankind, are fast fading away in the searchlight of natural sciences, and with the many hard-working and earnest students in the field of medicine and allied sciences, we can already see in the dawn of the coming century the realization of our most sanguine hopes, in having educated even the most humble in life to an understanding of the fundamental laws and principles which alone will insure a healthy, pure and happy life.

A GOOD SHOWING IN MEDICAL SOCIETY WORK.*

By GEORGE DOCK, M. D., Ann Arbor, Michigan.

PROFESSOR OF MEDICINE AND CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Some account of the work of the society seems proper on laying down the honors you conferred upon me a year ago. You will remember that at that time an important change was made in the work of the society, the meetings having been increased from four a year to nine. It seems proper to examine the result and to see whether the choice has been justified by experience or not. Seven meetings were held before this one. One was missed on account of the weather. One other, at least, had a small attendance on account of the number of other entertainments given the same evening. Nevertheless we find that the average attendance during the year has been twenty-three and three tenths. Seventeen formal papers have been read, eight informal reports of cases were made, and four specimens were presented. Besides these, on several of the evenings instructive exhibitions of microscopic slides were given, and a large collection of pathological concretions were shown.

As regards the work of the society, without making invidious comparisons, I might recall the valuable scientific papers of Doctor Wallace on "Saline Cathartics", Doctor DeWitt on "Myositis Ossificans," Doctor Baldwin on "Pathological Pigmentations," Doctor Georg on "Intestinal Sand," Doctor Warthin on "Inflammation of the Placenta"; also the instructive demonstrations of Doctor Cushny on "The Action of Chloroform on the Dog's Heart," and Doctor Huber on "Sensory Nerve Endings." Valuable clinical articles were furnished by Doctor Manton, of Detroit, on "When and How to Operate for Uterine Fibroids," Doctor Arneill on "The Diazo Reaction," Doctor Hutchins on "The Organization of Aseptic Operations," Doctor Wessinger," on the Nature and Treatment of Acne," Doctor Wilcoxson on "Goitre," and Doctor Darling on "Hemorrhage following Injuries to the Kidney." Some discussions of great scientific and practical value were originated by papers of Doctor J. F. Breakey on "Future Provisions for the Care of the Insane," and Doctor Gale on "Scarlet Fever." Interesting Clinical reports were made by Doctors Darling, Nancrede, Martin, Lynds, Georg, Cowie, Cooley, and others.

From this brief outline it will be seen that there was plenty of material for the consideration of the society. This being so, there can hardly be any objection to the increased number of meetings, since interest in such matters is more likely to be fostered by frequent meetings than when the intervals are long.

Although the attendance was fairly large, yet it is apparent that many failed to attend who should do so. It is unfortunately true that a number of University teachers feel that they have to talk often enough in the ordinary routine of their work, or, realizing that their investigations are promptly set forth before an audience, have a feeling of modesty in regard to volunteering before the society. This feeling is one that should be deprecated, since the audience is not the same and the interchange of thought that takes place in a society like ours is likely to bring out points of view that would not be so likely to occur in the classroom or clinic. Of another aspect of the question, namely, the obligation of teachers and investigators to put their results before the nearest organized medical society, it is hardly necessary to speak, and it will be seen from the minutes that some of the most regular attendants at the meetings are those who have the largest number of calls on their time as teachers and practitioners.

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*President's address before the Washtenaw County Medical Society.

Still another class has shown less interest in the meetings than it should, namely, the country practitioner. I realize the many obstacles to regular attendance on the part of those who live some distance away, yet even those who might have to drive ten or fifteen miles, after all do not lose more time in going to the meetings than is frequently lost by the members of medical societies in the larger cities, while, for a number of our country colleagues, the electric car has materially shortened the distance. It seems particularly desirable that the country practitioners should, on the one hand, aim to bring to the society the results of their varied experience, and, on the other hand, gather fresh interest in their work from the more theoretical papers and demonstrations. Frequent participation in a society made up of such varied elements as ours, including both young and old, country practitioners and specialists, should not only lead to increase of knowledge, but should also bring about the closer personal relationship that, wherever cultivated, adds so much to the ease and pleasure of medical practice.

In retiring from the Chair, I can only repeat the thanks that I expressed last year on my election and that, by so retiring, I hope not to give less time to the society than before, but rather more.

MEMOIRS.

IMPORTANCE AND SIGNIFICANCE OF THE REFLEXES.*

By IRWIN H. NEFF, M. D., Pontiac, Michigan.
ASSISTANT PHYSICIAN AT THE EASTERN MICHIGAN ASYLUM FOR THE INSANE.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE clinical value of the reflexes is a matter of no small importance to the general practitioner. While the subject is not infrequently of vital interest to the neurologist, the application by the nonspecialist will often yield satisfactory results. Every physician should have a general knowledge of the more important reflexes and the changes which they are subjected to in health and disease.

To emphasize the necessity for this it is only necessary to allude to the changes in the knee-jerk incidental to diabetes, tabes dorsalis and other organic nervous diseases; the easily exhausted but active knee-jerk of neurasthenia; the dilated and mobile pupil of general nervous exhaustion; the toe phenomenon in pyramidal disease, as noted in apoplexy; the immobile pupil of locomotor ataxia and paretic dementia. Examples might be multiplied. A sufficient number, however, has been given to establish the fact that a knowledge of the physiology and pathology of reflexes is of practical value.

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* Read before the DETROIT MEDICAL SOCIETY.

It is my intention to briefly refer to the nature of the reflexes used in the detection of disease, and then take up *seriatim* several of the more important reflexes and their relation to the different diseases in which they are lost or modified. Primarily it is essential that we fully appreciate the word reflex, and accustom ourselves to the fact that the reflexes we seek for for diagnostic and prognostic purposes have the same physiology as the countless number of reflexes which make up the life of the individual. Each reflex, of whatever nature, has a centripetal and centrifugal path, and a center. Recognizing this fact we can often roughly localize the disease, or can more easily correlate it with the associative symptoms. Any disease of a special sense is dependent upon disease of a center, disease of a connecting nerve, or disease of a sense organ. An analogy is seen in a lost or perverted knee-jerk. Eliminating any constitutional or local trouble which might account for the alteration, we justly consider that some portion of the reflex arc is functioning in an improper way. A like inference may be made regarding other reflexes which are used for diagnostic purposes.

We should be careful in relying for diagnosis on an alteration in a single reflex, and although we know that certain changes in reflexes are strongly suggestive, and often pathognomonic, they should always be considered with other symptoms. Thus, a lost knee-jerk does not always mean locomotor ataxia, neither does an immobile pupil necessarily indicate paretic dementia. Both conditions, when found in these diseases, have considerable clinical value, but as isolated symptoms they are valueless for a positive diagnosis. The increased study which has been given epilepsy would seem to show that loss of consciousness, which was formerly considered as the essential symptom, is not constant. The statistical value of the reflexes has likewise proven that exceptions are sufficiently numerous to cause us to exercise care in interpreting changes found in them. This fact does not, however, depreciate their value, as clinical evidence has proven that if certain reflexes behave in a specified way they are strongly suggestive of disease. I wish here to make impressive that the knowledge that reflexes have an unvarying behavior in certain diseases, will often give you valuable signs, and enable you to form your opinion of the disease at a comparatively early stage. The importance of this as regards treatment and other factors need not be dwelt upon. As is well known, the reflexes used for pathological purposes were originally divided into superficial and deep, the pupillary reflex being considered as one of the organic reflexes, and occupying a position by itself. As we have learned more of their nature we have discarded this rather arbitrary division.

ARCHIBALD CHURCH ("Nervous and Mental Diseases," page 31) very clearly describes our present conception of the reflexes as follows: "Reflexes have been variously described as skin, superficial, deep, tendon, muscular, and organic, distinctions that have no real value, as there is no essential physiological or anatomical difference. Many of them can be inhibited voluntarily by the patient, and all require complete passivity for their proper investigation. Some only appear as a result of disease." For purposes of simplicity, therefore, the old classification should not be used. The disadvantages which may result from the retention of such a classification are obvious. It not only limits our knowledge of the reflexes, but it may cause us to fail to recognize their multiplicity. New reflexes are not infrequently described, and are deserving of extended trial. The toe phenomenon was described by **Babinski** in 1896, and after a thorough investigation, extending over a period of four years, it is now quite generally accepted as a valuable diagnostic sign. A much more practical classification of the reflexes is the one now recognized and adopted by our modern writers. Each reflex is described in reference to the part to which it is related. Thus, in the arm we have the elbow-jerk, the wrist-jerk, and other muscular reflexes; connected with the eye we have the conjunctival reflex, and the various forms of pupillary reflexes. By the use of this method we can avoid confusion and useless controversy. A very good idea of the more important reflexes and their significance can be gained by reference to **Church** ("Nervous and Mental Diseases," page 36). His valuation of their importance is as follows: "In general we may say (1) that the Argyle-Robertson phenomenon, Wernicke's sign, iridoplegia, ankle, wrist, jaw and rectus clonus, are never found in health, and are valuable objective signs of central disease; (2) that the abolition of the knee-jerk occurs but very rarely, if ever, in healthy persons, and that the abolition of the sphincter reflex is strongly indicative of central disease; (3) that the abolition of the pharyngeal and plantar reflexes, with increase of others, is presumptive of hysteria; (4) that a moderate intensification of other reflexes indicates neurasthenia; (5) that the abolition of all reflexes in a given anatomical area points to histological disease, either central or peripheral, in the arcs supplying those reflexes."

It is manifestly impossible to even refer to the number of reflexes used by the physician in the detection of disease. It is my purpose to confine my remarks to a description of the three reflexes which are in general use. Having this in mind I have selected as representative of the groups, (1) the plantar reflex, being a type of the skin reflex; (2) the iris reflex to light, being a type of the organic reflex; (3) the knee-jerk, being a type of the tendon phenomena.

The importance of the numerous skin reflexes may be dismissed with a few words. With the exception of the plantar reflex, their variability precludes any great diagnostic importance. The cremasteric reflex is said by some to be of value in toxic and degenerative nervous diseases. Personal investigation has not verified this, and it would appear that it is subject to the same variation as the other skin reflexes. We do know that there is often a dissociation of the tendon and skin reflexes, namely, with the increase of the tendon reflex there is a diminution or abolition of the skin reflex, but as the reverse of this is not so true, the condition is of little importance clinically.

The plantar reflex, by virtue of its constancy and behavior, is often a valuable diagnostic aid. **Fraenkel** and **Collins** (*Journal of Nervous and Mental Diseases*, July, 1900, page 380) maintain that the plantar reflex is a typical representative of the skin reflex, as well as the most constant one. They have not found it absent without adequate attributable cause, such as disease of the peripheral nerves. Notwithstanding that they acknowledge that in profound nervous exhaustion this reflex may be considerably diminished, they deny that it is ever absent. Although the plantar reflex is a typical example of the skin reflexes, and therefore is liable to the same rules, it has been found that it can be modified or reversed. This modification has been proven to be of much benefit as a diagnostic aid. Naturally there has been an increased interest shown in the plantar reflex, and the "extensor phenomenon," or the "Babinski reflex," has been proven to be of practical aid in diagnosis.

In order to appreciate and properly deduce conclusions from this new reflex it is necessary that we understand the fundamental principles of the normal plantar reflex. In order to more thoroughly establish its constancy in health I will allude to some of the results obtained by WALTON and PAUL (*Journal of Nervous and Mental Diseases*, June, 1900). These investigators studied the normal plantar reflex in other than nervous diseases, and arrived at the following conclusions: That the usual normal reflex consists of flexion of all or some (generally outer) of the toes of both feet; that in perhaps ten per cent. of the cases no movement occurs; that in at least this proportion flexion occurs on one side and no movement on the other. The practical point to remember is that absence on one side is not infrequently found in health.

The Babinski reflex or phenomenon is essentially a reversal of the principal phenomenon of the normal plantar reflex. The normal reflex consists of a flexion of the toes, with associative conditions. The Babinski reflex consists of a constant extension of the toes, particularly of the great toe. Often the extension is slow and prolonged. The Babinski sign has been confirmed by various observers, and although its practical importance has been denied by some, the concensus of opinion is that it is a valuable diagnostic sign, and that it is indicative of the involvement of the pyramidal tract.

I have tested the plantar reflexes in a number of patients without nervous disease, excepting uncomplicated psychoses, and found that the variations of the normal reflex correspond to the figures quoted above. Several patients with suspected cerebral hemorrhage, seen in the unconscious state, showed this sign. The cases later developed a hemiplegia, indicating an involvement of the pyramidal tract.

The inference which we can make from the recent study of the plantar reflex is that in health it is present in ninety per cent. of all cases, and that the Babinski reflex is significant of pyramidal tract disease, and can often be found in early symptoms of cerebral apoplexies. The following conclusions of WALTON and PAUL (*Journal of Nervous and Mental Diseases*, June, 1900) are given verbatim, as representative of the present view we hold on this subject: "The Babinski reflex, *deliberate and constant* extension of the great toe, with or without extensive separation of the other toes, is never present in health, and our observations lead us to doubt its existence in either functional or organic, nervous or other diseases not implicating the pyramidal tract.

"The Babinski reflex obtains in about seventy per cent. of hemiplegias and diplegias, and in approximately the same percentage of cases with disease involving the pyramidal tract in the spinal cord." These authors also believe that the reflex is often the earliest symptom to appear in pyramidal tract disease, and that it may persist during the period when other reflexes are absent. They, therefore, conclude that this reflex furnishes a most important practical aid in diagnosis.

The iris reflex to light. Perhaps no symptoms are more constantly looked for in nervous diseases than those relating to the eye. In nervous disease the pupil is conscientiously examined, and the iris reflex to light is determined. The glistening eye and dilated pupil of the neurasthenic, and the spastic and immobile pupil of the paretic and tabetic, are well-known pathognomonic symptoms. Between these extremes we have a number of conditions which should receive attention. It should be remembered that the pupillary reflex is of a fine mechanism, and that a certain degree of care must be used when making any inference from its disturbance. When the pupil is examined in order to appreciate its departure from the normal certain requirements must be complied with. HOCHE ("Early Diagnosis of Progressive Paresis," *Alienist and Neurologist*, January, 1898) rightly insists upon a uniformity of examination. He believes that in estimating the pupillary reflex a correct technique is essential, and deplores the fact that the simple rules are so often violated. Among other requirements which he insists upon is one which the physician often neglects, namely, that the examiner constantly and clearly sees the pupil during the shading and the illumination of the eye, and that at the moment of illumination movements of accommodation, as well as of convergence, do not occur in the eye to be examined. He also speaks forcibly against the method of opening and closing the lid with the fingers, for the reason that slight movements of the pupils may readily escape the examiner. In judging of the size of the pupils he emphasizes the necessity of a diffused light of medium intensity, and also a symmetrical position of the light with respect to both eyes. This he thinks is equally necessary, in determining the difference in size of the pupils. To these recommendations I would add that in all doubtful cases the artificial light should be used in examination of the pupils.

An examination of the pupils of a number of persons without nervous disease will establish the fact that the iris reflex to light is constant in health, notwithstanding that errors in accommodation are not infrequently seen. When systematic and consecutive study of the pupillary reflex is made, errors in quantity are at times found, but the quality of the iris reflex is never altered in health. An examination of three hundred insane patients by the writer resulted as follows: sixty-seven per cent. of all cases showed an active or normal iris reflex to light; in seventy-seven cases the reaction was sluggish; the Argyle-Robertson pupil was found in two and six-tenths per cent.; while pupillary immobility existed in four and three-tenths per cent. The Argyle-Robertson pupil and the immobile pupil were found only in the paretics and in the organic psychoses. It is worthy of mention to note that pupillary irregularity was found in twenty-seven and nine-tenths per cent. of the cases. In only fourteen cases was this condition associated with qualitative changes in the iris reflex, and in these cases it was found in the organic psychoses. These results are in harmony with observations made on a larger scale, and we may with considerable certainty adopt these conclusions. (1) In health the iris reflex to light is always present. Its diminution may appear under diverse conditions; its abolition is significant of organic disease. (2) Pupillary irregularity, *per se*, is of little importance. (3) True reflex pupillary immobility and the Argyle-Robertson pupil are probably found only in organic cases, and are particularly significant of tabes and paretic dementia.

The knee-jerk. As is universally recognized the quantitative and qualitative changes in the knee-jerk are often strongly indicative of the patient's condition. The physician not engaged in special practice, in a general way, recognizes the import of such changes, but he often fails to interpret them correctly. Ever since WESTFALL first described this valuable symptom, attempts have been made to establish common cause for the phenomena. Hence arose the different names: patella reflex, tendon-jerk, knee-jerk, knee phenomenon. Today we are more conservative, and evading the question of pathogenesis we simply give it the name of knee-jerk. At the last meeting of the British Medical Association (*London Lancet*, August 18, 1900), W. MOTT and J. J. MASKENS arrived at the same conclusion, namely, that the so-called tendon phenomena were largely conditioned by muscular tonus. Muscular tonus, however, was not the only factor concerned, since variations in the nutrition, irritability, passive tension, and nervous relationship of the muscles produced marked alterations in their response. Muscular tonus was essentially reflex in its origin, while the tendon phenomenon was rather due to mechanical excitation of the muscles concerned in its production. PROFESSOR E. JENDRASSIK, at the Thirteenth International Congress of Medicine, recently held at Paris (*Lancet*, August 18, 1900, page 530), gives, among his conclusions, the following: (1) The tendon reflexes are true reflex movements. (2) The patella reflex and the tendon reflexes in general, are the result of sudden momentary stimulation of the sensory nerves, and the tissues surrounding the tendon, and were not transmitted to the muscle by vibration of the tendon. (3) Muscular tonus had a great influence on tendon reflexes: if it was increased the reflex was very active; diminution of the tendon tonus might even abolish these reflexes. The consensus of opinion today is that the knee-jerk production depends upon the state of the muscular tone and the integrity of the reflex arc. In other words it is due, first, to direct stimulation of the muscle, and, second, to reflex influence.

Bearing in mind the two-fold reason for its existence we can quite easily classify the perversions of the knee-jerk. In interpreting these perversions we should always bear in mind that the integrity of the reflex arc is not always disordered. For instance, the quantitative changes so often found in neurasthenia have some dependence not unlikely on the lowered state of the muscular tone, which is so often found in functional nervous disorders. Likewise the abolition of the knee-jerk in tabes is now explained by the diminution of the muscular tonus. Some other points regarding the testing of the knee-jerk should always be thought of. The knee-jerk should always be sought for in a systematic way and under varying conditions. The physician should exercise as much care in his technique as he does when making other clinical examinations. He should keep prominent the fact that the loss, diminution, or exaggeration of the knee-jerk are not the only deviations from the normal response. The examination for the exhaustibility of this reflex is of considerable importance, and should always be studied. Another essential point is the utility of reinforcement. The necessity for this cannot be overestimated. Time and time again I have elicited the knee-jerk by one of the methods of reinforcement, where it could be obtained in no other way. The percentage of normal individuals where the knee-jerk is absent is less than two per cent. So we see that it is a symptom which should receive thorough consideration. Always test both knee-jerks under similar conditions. In the healthy individual the knee-jerks are alike. The age of the individual has an important bearing on the knee-jerk. Excluding any organic involvement which might modify it, we ordinarily have a diminution after the age of forty-five.

When examining for the knee-jerk select your technique and examine both for quantitative and qualitative changes. Never be sure of its absence until you try the effect of reinforcement. It is well known that the degree of response of a tendon from a blow depends to some extent upon the muscle tone. A voluntary effort made by the patient when the tendon is struck raises the muscular tonus, and consequently adds to the activity of the phenomenon. MITCHELL and LEWIS have proved that sensory stimulation often causes exaggeration of the knee-jerk. Their method consists of sudden or painful sensory stimulation, as by striking or pinching the skin, twitching the hair, et cetera, just as the tendon is struck. These two methods of reinforcement—JENDRASSIK'S and WEIR MITCHELL'S—are easily applied, and should always be utilized when the knee-jerk apparently is absent, or when it is difficult to elicit. To illustrate the variations in the knee-jerk I will refer to one hundred and ten consecutive cases admitted to the Eastern Michigan Asylum. In eighty of these cases the knee-jerk was present; in twenty-two cases it showed a distinct bilateral exaggeration; and in eight cases it was absent. Excluding ten cases of the organic psychoses, in which the knee-jerk was absent in four cases and exaggerated in six, we have one hundred cases where the anomalies of the knee-jerk, if present, must be dependent upon the state of the individual, or possibly dependent upon the form of the insanity. In reference to this latter possibility I will say that it is exceedingly improbable, eliminating the organic psychoses, if any constant variation in the knee-jerk has any direct bearing on the form of the mental disease. Analyzing the one hundred cases, we have eighty cases where the knee-jerk was present, while in eighteen cases there was a distinct bilateral exaggeration, and in four cases no knee-jerk could be obtained. Two of these patients wherein the knee-jerk was apparently absent, were senile cases, where, on account of the mental enfeeblement, the methods of reinforcement could not be used. Two of the patients, notwithstanding reinforcement, appeared to be devoid of knee-jerks. This investigation, although on a small scale, is in harmony with the results obtained by others.

General conclusions: (1) The examination of the more important reflexes is a matter of practical value to the physician. (2) In order to appreciate the diagnostic and prognostic value of the reflexes, a knowledge of their behavior in health is essential. (3) A certain technique is always indicated, otherwise wrong inferences may result. (4) When examining reflexes for diseases never attach undue importance to an alteration in a single reflex. (5) Certain definite changes in reflexes are suggestive, and at times pathognomonic. Such modifications should be considered with the syndrome of the suspected disease.

ETIOLOGY AND TREATMENT OF PURULENT PLEURISY.[*]

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IT is now universally accepted that every purulent pleurisy is the result of a microbic invasion of the pleura, and that it may be either a primary or secondary affection. For clinical purposes the empyemas may be divided into four different classes, according to the microorganism solely or chiefly concerned in its production; namely, streptococcal, pneumococcal, tuberculous, and the saprogenic. The relative frequency of these several varieties in adults is as follows: Streptococcal, fifty per cent.; pneumococcal, twenty-five per cent.; tuberculous, fifteen per cent.; the other ten per cent. being due to saprogenic, staphylococcic, or other microorganisms. In children the pneumococcal variety is by far the most frequent, being the cause of about seventy per cent. of all cases, about twenty-five per cent. being streptococcal, the saprogenic and tuberculous forms being very rare. The operative as well as the prognostic indications suggested by the different microorganisms are of great importance, as the operation best suited for one variety might be of no benefit if adopted for another.

The pneumococcus is comparatively a benign organism, having no marked destructive or pyogenic tendency, and is very short lived. Therefore, the empyemas associated with it are the most amenable to treatment, and are occasionally even spontaneously absorbed. The streptococcal has a very destructive tendency, and is never cured except by a complete evacuation and thorough drainage. The saprogenic or putrid pleurisy is most virulent, and evacuation with drainage must always be followed by antiseptic irrigation. The method of treatment selected will also depend upon whether our empyema is interlobar, encapsulated, or general; also upon the duration of the case, the condition of the lungs, and walls of the chest, age and general health of the patient. The several treatments that have been followed with successful results are as follows:

First, simple thoracentesis by aspiration.

Second, constant drainage by syphonic action, with or without antiseptic irrigation.

Third, thoracotomy by simple incision in one of the intercostal spaces.

Fourth, thoracotomy with rib resection.

Each of these methods has its strong and earnest advocates, but it seems to me none of them should be universally used, and the operation we select should only be made after a thorough consideration of the factors above mentioned. Each operation has its distinct limitations, and along lines that are strongly drawn, and must not be overlooked. First of all, it must be a cardinal rule that whatever method we may select, the operation is to be performed under strict aseptic conditions Taking up the methods employed in their order, we shall endeavor to point out the advantages of each one according to the special indications existing.

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[*] Read before the DETROIT MEDICAL SOCIETY.

Aspiration is usually insufficient for the vast majority of cases, as it does not give us good drainage, which is usually absolutely necessary for a good result. However, it is an operation which, if properly performed, is entirely harmless and devoid of shock production, some operators preferring it to any other in cases of the pneumococcal variety in children. HOLT reports twenty per cent. of recoveries out of a hundred and twenty cases. If, after three aspirations, the reduction of temperature is not complete, it should be followed by more radical measures.

In France simple aspiration is usually advised in all cases of pneumococcal origin, even in adults, the claim being made that after aspiration there is a better chance of an immediate and complete expansion of the lung. This consideration is certainly important, and in a patient with only a slight rise of temperature and fair general health, the operation is undoubtedly worthy of trial.

In cases of tuberculous empyemas that are latent, associated with an incurable form of pulmonary phthisis, the patient enjoying comparatively fair general health, this operation is sometimes very beneficial, as in these cases permanent and annoying fistulæ remain after a simple incision or resection, and there is less danger of amyloid degeneration following the operation. However, care must be exercised to not remove sufficient of the effusion to permit of expansion of lung tissue that is more or less tubercular and in a quiescent state, as it may be aroused to fresh activity with bad results. Indeed, some prefer to practice noninterference in many of these cases.

Syphon drainage, or the method of BULAU has received little support except in Germany, where it is strongly advocated by some operators. This, as you know, is performed by puncturing the chest with a large trocar, and after most of the pus escapes a soft rubber catheter is passed through the canula into the chest, after which the canula is slipped off over the catheter. A long rubber tube is now fastened to the catheter, and the other end connected with a bottle partly filled with an antiseptic liquid. The pus is then continuously syphoned from the chest into the bottle, so that if at any time the flow is interrupted, there is no danger of a backward flow of air into the chest. After passing the catheter through the canula a clamp should be attached to the external end of the catheter, and when the canula is removed from the chest a second clamp should be applied between the canula and the chest. This will prevent any air from entering the chest during the operation. By lowering or raising the bottle the direction of the flow may be changed as desired. The objections to this method are that the drainage is defective; that the bottle must continuously be carried about, and that no exploration of the pleural sac is possible. However, in cases of pneumococcal origin and the chronic tuberculous variety of adults, the method is very satisfactory. For children the necessity of carrying the bottle continuously makes the operation undesirable. In any case wherein adhesions are present or conditions of the pleura require curetment, or where the lung is inexpansible, the operation is not to be considered. The location for puncture is the same as that for simple aspiration.

Thoracotomy by simple incision through one of the intercostal spaces is strongly advocated by many operators, both in this country and in Europe. The operation is simple, but should be strictly aseptic in all its details. The patient should be placed in a semirecumbent position with the arm raised above the head. The incision should be made over the selected site down to the intercostal muscles, and the latter divided between two retractors until the pleura is exposed. This should then be punctured with a knife, or if any doubt exists regarding the diagnosis, the sac should be first aspirated. The opening should then be enlarged sufficiently to introduce a finger and allow the pus to escape slowly, as a too sudden evacuation of the pleural cavity may be followed by fatal results from overdistention of the heart and large vessels. General anesthesia is not necessary unless preferred by the operator. Local anesthesia, by the injection of cocoain, the spraying of ether, the application of ice, or other methods, is sufficient in most cases. However, in children general anesthesia is preferred, as there is less liability of danger from shock.

The advocates of this method as compared with thoracotomy by rib resection, claim that in addition to the simplicity of the operation itself, there is less danger of a permanent fistula remaining with its attending dangers, and the discharge ceases earlier. These claims are undoubtedly well founded in the empyemas of children wherein simple incision is usually all that is required, although many pediatricians prefer to make a rib resection in most cases. DOCTOR SCHARLAN reports fifty-six cases in the *Archives of Pediatrics* operated on in Mount Sinai Hospital, with only two deaths in consequence of the operation. Eighteen of the cases operated upon resulted fatally, but they died from intercurrent diseases or from tuberculosis or pneumonia that existed prior to the operation. This operation, however, is usually unsatisfactory, and often impossible in adults owing to the ribs being so close together, especially along the axillary line, that it is impossible to introduce a drainage tube in the opening, and drainage is thereby ineffective. Objectors to this method assert that in most cases after the evacuation of the pus, owing to the more or less sinking in of the chest wall, the coming together of the ribs prevents drainage, and that the opening closes earlier than is desired. The rest of the operation and subsequent treatment is the same as when rib resection is made, and will be described under that method.

Thoracotomy with rib resection is the operation usually preferred for the treatment of empyema of adults in this country. It is the only operation that meets the requirements of all cases, leaving nothing to be desired. It not only secures a thorough evacuation and good drainage, but permits of a thorough investigation of the pleural sac, thus permitting the operator to manipulate the affected parts to every advantage. Better results have been obtained by this method than any other, and if the operation is properly performed it seldom results fatally. General anesthesia should always be used, and chloroform is usually selected because it is less irritating to the-respiratory tract, and less liable to produce struggling with its danger of producing a rupture into the lung, and immediate suffocation.

The patient should be placed on his back, and not turned on his side after he is anesthetized. The axilla should be shaven and the parts made thoroughly aseptic; the operation must be thoroughly aseptic in every particular. Regarding the site of incision the majority of operators select a fourth, fifth or sixth rib, a little in front of the axillary line. Some surgeons prefer to operate just below the angle of the scapula, but as this necessitates having the patient lying on his side it is usually strongly contraindicated. When this location is selected for simple incision, aspiration or resection, drainage is frequently interfered with by the diaphragm rising after evacuation and blocking up the drainage tube. The rib having been selected, an incision three or four inches in length should be made over the selected rib down to the periosteum. The soft part should be held firmly apart by retractors, and the rib denuded of its periosteum for about two inches of its length; this should be carefully done, and great care exercised to prevent the perforation of the pleura in its removal. This is by no means easy, as the ribs are usually close together. and it is difficult to remove the periosteum from the inner surface. For this purpose I have devised the periosteum elevator I now show you, and have found it very satisfactory. After a portion of the rib is thoroughly denuded of its periosteum, I usually pass one or two strands of coarse braided silk around the rib, and by working it to and fro the remainder of the periosteum is easily detached, thus preventing further danger of pleural perforation. The braided silk is then replaced by a strip of iodoform gauze, which serves as a retractor of the soft parts, and traction elevates the rib sufficiently for the application of the rib shears by which we remove from one to three inches of the bone. Any hemorrhage should then be checked, and the pleura will be found tense and probably bulging into the wound. The edges of the rib should now be well smoothed and dusted with iodoform, and the incision made in the trough of the periosteum, so as to avoid the intercostal artery that lies outside of the periosteum along its lower margin. This incision should be small, at first only sufficient to permit the introduction of the index finger, and the pus allowed to escape slowly as recommended in simple incision. The anesthetic may now be withheld, and a thorough examination of the pleural sac made after the pus is evacuated. Should adhesions be found they must be thoroughly broken up, and any tuberculous foci thoroughly cureted. The patient may now be placed upon the affected side, the hips elevated so that the pleura is thoroughly emptied. Should the case be a putrid empyema, the pleural sac should be thoroughly irrigated with Thirsch's solution of salicylic and boric acid, Labaraque's solution of chlorinated soda, bichoride solution or any antiseptic solution preferred by the operator. A drainage tube three to five inches in length, thoroughly coated with iodoform, should then be introduced into the cavity, which can be prevented from slipping into the chest by passing a large needle or safety pin through the outer end parallel with the integument, and placing several layers of iodoform gauze between the pin and the skin will prevent subsequent ulceration from pressure. The external wound may then be closed on either side of the tube by several stitches, which invariably heal by first intention. A thick layer of iodoform gauze should now be applied over and around the drainage tube, and this covered with sterilized gauze, a large pad of cotton applied over the affected side of the chest filling up the axilla, and a twelve-inch binder applied six or eight times around the chest and firmly secured. This dressing should not be changed for three or four days, unless the temperature should rise or the dressings become saturated with pus. The patient should remain in bed for three or four days, and then, if no elevation of the temperature occurs, he may be permitted to walk around,

The subsequent treatment of these cases is no less important than the operation itself, and each dressing should be made with strict antiseptic precautions. Ordinarily it is sufficient to change the dressings every third day, but should the temperature rise at any time, or the dressings become saturated, a daily dressing may be required. The drainage tube will gradually become expelled as the lung expands and the chest wall retracts, until usually at the end of from five to ten weeks the discharge will have ceased and the opening closed. Irrigation of the pleura was practiced in all cases up to about 1885, but since a number of deaths resulted from it many operators began to discourage its use, and now we find very few who use it, except in putrid empyema where it becomes a necessity in most cases. The usual method of irrigation is by the use of a fountain syringe or syphonage, but DOCTORS ZEMAN and ADAMS speak very highly of submersion, which is performed by placing the patient into a bath of sterilized water made antiseptic or not, when it will be found that during each inspiratory and expiratory effort a strong and effective flow inward and outward takes place that thoroughly washes the pleural sac. On account of the greater force of the flow by this method, fibrinous coagula and other products of inflammation are thoroughly removed. After the operation, to facilitate drainage, the patient should be encouraged to lie upon the affected side as much as possible, and two or three times daily when in the recumbent posture it is advisable to elevate the lower extremities and hips, with the patient lying on the affected side, so as to thoroughly empty the pleural sac. To induce expansion of the retracted lung the daily use of the Wolf bottle should be advised.

Should these operations prove unsuccessful, owing to the nonapposition of the costal layer of the pleura to the visceral layer, on account of the lung retraction, as manifested by the fistula continuing to discharge, it will be necessary to make a multiple rib resection as proposed by ESTLANDER, known as thoracoplasty. This is performed by making a T- or I-shaped incision, and removing parts of any number of ribs from the first to the tenth, in the same manner as recommended for single rib resection. Some operators remove portions of the pleura and others prefer not to do so. However, in some cases this becomes necessary, as the redundunt costal pleura protrudes into the wound and interferes with union. Happily it is rarely necessary to make this operation, and it becomes less so every day, as the physician's accuracy in diagnosing these cases early makes the less dangerous operations sufficient to effect a cure.

THE PRINCIPLES OF METABOLISM AND NUTRITION.[*]

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A KNOWLEDGE of the subject of nutrition and metabolism, which is of such great importance from an economic point of view, which is so invaluable to the health and welfare of every individual, and which is of such an absolute necessity to the medical profession in relation to the maintainance of health and the treatment of disease, has for some unaccountable reason been sadly overlooked in America. By our schools the subject of nutrition has been neglected, by our medical colleges slighted, and by far too many medical practitioners entirely ignored. Why this is so, is difficult to say, but the fact remains that America is far in the rear of all other countries in regard to knowledge of the subject of nutrition and metabolism.[†]

This statement, even now after what I have said, may seem extravagant; but let us see. I have before me at this moment a monograph written by my friend, DOCTOR H. G. BEYER, of the United States Naval Institute, Annapolis, entitled "The Hygiene of the Navy Ration." In this paper DOCTOR BEYER shows the inadequacy and deficiencies of the methods of selection and preparation of our naval rations in such terms as to leave no room to doubt that our navy ration is much in need of revision. Our navy, which so gallantly defended the dignity of our country, surely deserves a ration which will not provoke the criticism of one of its own officers. Poorly as our regular sailors may have fared, our army soldiers and naval reserves fared even worse. It is not necessary here to recount the scandal which our miserable army rations occasioned during our last war. Everyone is acquainted with the circumstances.

That nutrition should be taught in our public and private schools, is brought home to me every day in the pursuit of my practice of diseases of the stomach and nutrition. Both growing children and adults are grossly misfed in this country and not in consequence of an inadequate food supply, but as the result of the improper selection and preparation of food-stuffs. So, too, I see, from time to time, patients under the care of medical practitioners who are in a low state of inanition, and for the only reason that the nutritive value and the degree of digestibility of food-stuffs have been ignored. Yearly I see scores of patients who have been fed on some proprietary nostrum, or, perhaps, almost exclusively upon beef-broth, which latter, analyses have shown to be practically devoid of nutritive material. Boullion is a strong nerve excitant, which the writer showed in some experiments[‡] upon the physiology of the thyroid gland. Animals from which the thyroid gland has been extirpated are in an abnormally excitable condition as regards irritability of the nervous system. When boullion is fed to such animals, it immediately throws them into a series of epileptiform convulsions, while a bland food like milk or meat, from which the salts have been extracted, leaves the animals unaffected. Chemical analyses show beef-broth to contain salts, extractives, one-half per cent. of albumen, one-half per cent. of fat and about one per cent. of gelatine.

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[*] Read before the DETROIT MEDICAL AND LIBRARY ASSOCIATION.

[†] This is not intended as a reflection upon the very commendable work which is being done at a number of experiment laboratories.

[‡] "Physiologie der Schilddruese," *Archiv f. Anatomie u Physiologie.*

Many other instances of neglect of feeding might be mentioned, but this will suffice to show that we are daily ignoring a means which is often far more potent than therapeutic measures and which for the preservation and restoration of health dare not be overlooked.

The subject of nutrition and diet has been the object of study from the earliest time. ARISTOTLE, HIPPOCRATES, GALEN and numerous other philosophers and physicians gave the subject of nutrition considerable prominence, although their teachings rested simply upon an empirical basis. It was not until PRIESTLY and SCHEEL (1774) discovered oxygen, and LAVOISSIER (1780) defined the nature of oxidation processes and when, finally, the researches of LIEBIG and MULDER disclosed the nutritive role and nature of albumen that the subject of metabolism received the stamp of scientific precision. Although it was the epoch-making work of LIEBIG which acted as an incentive to the research, which now belongs to the classics of the science of medicine, time has reconstructed his original ideas considerably.

LIEBIG taught that the destruction of albumen in the organism served the purpose of furnishing energy for the mechanical work of the body. It was MAYER, the physicist, who combated this view, and later experimentation corroborated his theory. It was shown that the increased ingestion of albumen during rest increased the nitrogen excretion in the form of urea, which circumstance definitely disposed of the original LIEBIG contention.

Since this period, BISCHOFF, BIDDER and SCHMIDT, SALKOWSKI, VON NOORDEN, HOPPE-SYLER, VOIT and PETTENKOFFER and their pupils —mostly Germans—have established a school, we may say, of metabolism, whose achievements stand without parallel in the history of the subject of nutrition and whose results are equal, in regard to ingenuity and scientific acumen, to the greatest discoveries made up to the present day. So much for the physiological side of this subject.

If now we turn to the subject of the feeding of invalids, we find that, like the subject of feeding healthy individuals, the Greek and Hindoo schools of medicine early recognized the importance of the subject to the science of medicine. Tracing this subject through its various phases, it will be recognized that few problems in medicine have been the subject of such bitter controversy as that of tbe proper feeding of invalids in particular diseased conditions.

The various teachings from the time of HIPPOCRATES to SYNDENHAM (1684), from the latter to the antiphlogistic school (1796), and from that period to the present time, seem almost incredible to us today, and while we have passed, for the most part, through the storm and stress period, there are yet a number of points which are still far from being settled (the subject of alcohol, for instance), and we are still often guilty of oversight and neglect in feeding many of our patrons both in health and disease.

The object of dietary in disease should not simply be that of meeting primary and secondary conditions, incident or consequent upon disease, but should also be to apply it directly as a therapeutic means.

The science of medicine should, first of all, strive to preserve the nutritive equilibrium of an individual during disease by the methods of feeding which the science of nutrition and metabolism indicate are the most acceptable in the particular difficulty from which the patient may be suffering. We know that the susceptibility of an organism to disease is increased, that its resistance is decreased, by a low nutritive state of the body, and we further know that the regenerative processes in the individual are lessened by like circumstances. Therefore, our aim in every pathological condition should be to attempt to bring the patient in the nutritive condition compatible with the condition with which he is suffering. This done, we have laid the foundation for the rational treatment of the individual.

My mention of our knowledge of nutrition as a direct therapeutic measure had reference to its application in fever, gout and rheumatism, diabetes, gastro-intestinal disorders, obesity, albuminuria, and other kindred disorders in which pathological conditions of nutrition play an important part. Aside from this, feeding is always a therapeutic measure whenever it is applied with an object of correcting abnormal conditions, irrespective of whether the application be considered a primary measure or simply secondary to other physical or strictly medicinal forms of medical treatment.

FOOD-STUFFS.

Food-stuffs may be divided according to whether they furnish energy to the organism; whether they serve the purpose of rebuilding the wasted tissues; or, whether they serve simply the purpose of replacing waste constituents without furnishing energy to it.

Water, which occurs in the organism to the extent of sixty-three per cent., as, also, the inorganic salts, cannot be termed food-stuffs, for the reason that they do not furnish energy to the organism.

Gelatine, carbohydrates (sugar and starches), and oxygen belong to the first group, albumen and fat to the second group, and water and salts to the third group.

ALBUMEN.

Albumen, which represents about ten per cent. of the weight of the human body, is found in every plant and animal organism, irrespective of whether it be unicellular or multicellular, and constitutes the most important food of every organic entity, whether it belong to the plant or animal kingdom. Albumen may be considered the most important of the group of food stuffs, for the reason that, unlike some of the other food-stuffs, it cannot be replaced by any other known nutrient principle. Albumen derived from different sources, either from the plant or animal kingdom, exhibits different chemical and physical properties. The property common to all albumens is that pertaining to its chemical constitution. All albumens contain carbon, hydrogen, oxygen, nitrogen and sulphur, with a certain degree of atomic relationship. Further, albumen never, strictly speaking, is found in a state of solution and does not pass through animal membrane; hence, it belongs to the class of substances termed colloids.

A colloid is a substance which may be found either in a state of coagulation or apparent solution. Some inorganic substances show this same peculiarity and among this class a certain number are found.

in the crystalline state, which lends strength to the belief that albumen also may yield to a process which will render it crystallizable.

In plants a number of observers have found albumen in a semi-crystalline state to which the term crystalloidal is applied.

The aim of all physiological chemists during the last decade has been to succeed in crystallizing albumen, for not until we are able to crystallize it may we hope to determine its exact nature. In a manner, it is true, albumen has been rendered crystalline by the action of alkalies and metal salts, but the results obtained have not corroborated the anticipations of the various workers who have occupied themselves with this subject. In other words, the exact atomic relationship of the elements of albumen and an accurate knowledge of its oxidation products are still unsolved.

When albumen is subjected to the actions of the pancreatic or gastric secretion, it undergoes a complex change; for albumen is never absorbed as such by the organism.

When albumen is acted upon by hydrochloric acid and pepsin, it is converted into syntonin, albumose and peptone, or, according to more recent investigations,

albumen,
hemialbumose, antialbumose,
hemipeptone, antipeptone.

The absorption of peptone into the circulation is effected by a direct cellular action of the absorbent vessels—not through the action of filtration and diffusion as was at one time taught.

During the absorption of peptone, the epithelial cells of the stomach and intestines re-convert it into albnmen and as such it circulates in the blood. If peptone be injected into the blood it disappears very rapidly, being eliminated by the kidneys, whereas peptone absorbed by the gastro-intestinal tract never under normal circumstances appears in the urine.

In various pathological conditions peptone is found in the urine, but it is not dependent upon that derived from the gastro-intestinal canal through the process of digestion. It has been shown by HOFFMEISTER that it is the leucocytes which absorb the peptone, which action begins in the gastro-intestinal tract.

It follows from what has just been remarked that the various albumens which are distributed throughout the organisms, are dependent upon the albumen taken into the gastro-intestinal tract. (This includes vegetable albumen as well as animal albumen.)

The principal albumens of the body are, serum-albumen and globulin. Other albumens and albuminoids, the result of specific action of particular cells, are caesin, the typical albumen of this class and hemoglobin, mucin, epidermis, hair, nails, et cetera.

It is at present impossible to definitely trace the various stages through which albumen passes in the animal organism.

Here we should simply like to call your attention to some of the principal end products of albumen metabolism. One of the most important end products is urea; eighty to eighty-five per cent. of the nitrogen of the urine is found in the form of urea. Some of the other nitrogenous products are ammonia, uric acid, kreatin, kreatinin, urobilin, et cetera. The nonnitrogenous products of albumen metabolism are indol, skatol, kresol, naphthol, benzoic acid, et cetera.

They are oxidized into carbon dioxid and water. Whether a direct formation of fat out of albumen is possible has not been proved. We do know, however, that albumen forms carbohydrates and they in turn form fat. It has been shown that a meat diet does not reduce the glycogen reserve in the system.

The rate and degree of digestion and absorption of albumen, as well as of carbohydrates and fats, depends upon many circumstances. In the first place, the quantity and quality of the various gastro-intestinal digestive secretions may vary in different individuals and in the same individual at different times; in a like manner, the motility of the intestinal tract may be more energetic at one time than at another. This variability may be brought about simply by mechanical disturbances in the digestive tract itself or external to it. It may be brought about by a congenital deficiency in the motor or secretory functions of the gastro-intestinal tract. On the other hand, the deficiency may result from some transient nervous cause—central or peripheral.

Among the causes bringing about these conditions I need only mention tumors, constipation, infectious diseases, localized or general congestion, as the result of inflammation, cardiac, hepatic, or renal disease, organic disease of the central or peripheral nervous system, and lastly, the purely mental influence of the nervous system in the form of emotions, such as fright, fear, et cetera.

The second circumstance which influences the rate and degree of digestion and absorption of albumen introduced into the gastro-intestinal tract is determined by the source from which the albumen is derived, or the form in which it is introduced into the system.

Two substances may, analytically, contain like proportions of albumen, but while the one substance may yield its albumen readily to the influence of the action of digestion, the second one may contain its albumen in a form in which it is not available as a food-stuff.

In a general way it may be said that albumen derived from meat is more easily absorbed than the vegetable albumens contained in a vegetable diet.

I, herewith, append a table in which the degree of absorption of albumen of different animal food-stuffs has been determined.

Food-stuffs (animal).	Percentage of Unabsorbed Albumen.
Beef (same individual)	2.5 2.8
Eggs	2.9
Milk and cheese (same individual)	2.9 4.9 3.7
Milk (four observations upon four different individuals	6.5 7.0 7.7 12.0

The following table contains a list of the percentage of albumen absorbed from different vegetable food-stuffs:

Food-stuffs (vegetable).	Percentage of Unabsorbed Albumen.
Cornmeal	15.5
Peas and bread	12.20
Wheat bread	19.9
Rice	20.4
Rye bread	22.2
Wheat bread (same individual)	18.7
	20.7
	24.6
	25.7
Peas, cooked into mush (same individual)	17.5
	27.8
Black bread	32.0
Potatoes	32.2
Lentils	40.
Lentils, potatoes and bread	53.5

It will be seen from the study of the above tables that a food-stuff to be of value as a nutrient must not only contain the food principle sought after, but must contain that particular food principle in a form in which it is readily available to the gastro-intestinal system.

Modern methods in the preparation of foods-stuffs are overcoming many disadvantages that were formerly met with in the administration of food-stuffs containing unavailable nutrients; and the wonderful progress which has been achieved during the last ten years may serve as an index of what we may expect during the next ten years.

GELATINE.

We should here like to refer to a class of substances—the gelatines—which, although they bear a striking chemical resemblance to albumen, yet, physiologically, have an entirely different action.

Like albumen, the gelatines contain carbon, hydrogen, oxygen, nitrogen and sulphur; they may exist in an apparently soluble or coagulated state, are not diffusible, hence, belong to the colloids. However, while all albumens coagulate upon application of heat in a neutral or slightly acid medium, the gelatines are rendered soluble under like circumstances and coagulate or form a jelly-like mass upon cooling. The source of gelatine is albumen, which is proved by the fact that all suckling and herbivorous animals develop gelatine, yet do not receive it in their food. The caloric worth of gelatine is less than that of albumen, showing that a certain percentage of the potential energy of albumen is lost in the conversion of albumen into gelatine.

It has been shown by direct experimentation that gelatine cannot substitute or replace albumen. Animals fed upon gelatine and fat excrete more nitrogen than is contained in their food, showing that the organic albumen suffers a loss which is not replaced by the gelatine. On the other hand, when gelatin is added to an albumenous diet it lessens albumen dissipation as do other substances, such as fats and carbohydrates, but to a greater degree than the latter.

This subject of the substitution of one food by another, is of the greatest interest to the science of metabolism. It is of interest not only to determine the exact roll and importance of each food-stuff, but also, to determine the interdependence of one food-stuff upon the other. Not only have we recently succeeded in experimentally reducing some of the food-stuffs to an extent of fifty to seventy per cent. below the figures mentioned in text-books, by substituting other nutrient principles, but we have also succeeded in nourishing one class of animals upon the diet typical of an entirely different class of animals. I refer to the feeding of a typically carnivorous animal upon a strictly vegetable diet and the feeding of a typically herbivorous animal upon a diet containing meat as its only albumen yielding food-stuff. These latter experiments the writer performed upon rabbits in the course of a series of experiments upon the subject of the formation of uric acid. As is known, herbivorous animals form very small quantities of uric acid in their system. This cannot be solely due to vegetable food, as it is probable that vegetable albumen produces the same end products of metabolism as animal albumen—other things being equal. Our object, therefore, was to determine the effect of a meat diet upon the uric acid and urea metabolism of a typically herbivorous animal; and for this purpose we selected the ordinary domestic rabbit. Three different rabbits were fed upon meat, from which the salts and extractives had partiallv been extracted and a mixture of cane and grape sugar, which was dissolved in one hundred cubic centimeters of water. Under this diet the urine assumed an acid reaction, the animals remained apparently well and one even gained somewhat in weight.

Further on, in relation to the caloric worth of food-stuffs, we shall again refer to this subject of the substitution of nutrient principles.

FATS.

Fats constitute about sixteen per cent. of body weight. The fats utilized as nutrients are mixtures of triglyceride of oleic, palmitic and stearic acids. Chemically, fats are composed of carbon, hydrogen and oxygen in a percentage which does not show great variability. This constitution, that is, the mixture of stearin, olein and palmitin, refers both to animal and plant fats, although some of the vegetable oils contain only palmitin and olein. The different consistency of fat found in different species of animals is determined by the relative proportion of olein, stearin and palmitin.

Fat is the only constituent of the body which is subject to very great variations as regards its percentage—the fluctuation may vary between nine to twenty-three per cent. During starvation about two to four times greater quantity of fat is consumed in the organism than albumen. The stomach has no action on fat other than to melt it. It is true, a slight chemical action of fat has been noticed in the stomach by a few observers (fats split up into fatty acids and glycerine), but this was, undoubtedly, due to the presence of small amounts of pancreatic juice. When fat comes in contact with the biliary secretion and pancreatic juice it forms an emulsion, although, small quantities are, undoubtedly, absorbed unchanged. These two secretions, bile and pancreatic juice, convert fat into triglyceride, free fatty acids and soap. This action is accomplished by a ferment, steapsin, contained in the pancreas. Like the rest of the ferments found in the body we know steapsin simply by its action, for it has never been isolated in the free state. Steapsin separates fats into fatty acids and glycerine. When this separation has been effected, the alkaline juices of the intestines, bile and pancreas, unite with the fatty acids and form soap. The small intestine has, however, a slight acid reaction and, experimentally, this action cannot be gotten in an acid medium. As already mentioned only a small quantity of the ingested fat is absorbed unchanged; the larger quantity being absorbed as triglyceride.

Fat is taken into the system by a special cellular action, in a manner similar to that of albumen and is carried in the circulation by the leucocytes. Irrespective of whether fat is absorbed as triglyceride, fatty acids, or soap, it is found only in the form of neutral fats in the lacteals. The intestinal wall effects a synthetic action in this case just as it does in the case of albumen. Several hours after digestion the plasma becomes free from fat. The greater per cent. of fat is deposited in the liver and connective tissues, while a certain amount of it is immediately oxidized and very likely in the liver. The intestinal tract can absorb three hundred grammes of fat or even a larger quantity.

Fat is found in the feces of a fasting individual to the extent of one and two-tenths grammes per day, which circumstance must be taken into account in considering the absorption of food fat. Ordinarily, ten per cent. to fifteen per cent. of fat is passed off by the feces, when from twenty-five to forty grammes are ingested daily, and less, when larger quantities (one hundred grammes) are taken. The average loss when one hundred grammes are taken is about four to six grammes—in some experiments as low as one and twenty-eight one-hundredths per cent.

The melting point of fat determines its degree of absorption; the lower the melting point the more readily it is absorbed. It follows from this that while a number of fats may possess the same caloric value, their melting point largely determines their nutritive worth as food-stuffs.

	Melting Point.	Unabsorbed.
Stearin	60° centigrade	91–86%
Tallow	49° "	7.4 %
Lard	34° "	2.5 %
Butter	31° "	1.28—6.0 %
Olive oil	fluid	2.3 %

CARBOHYDRATES.

Carbohydrates constitute the most important food principles of the vegetable food-stuffs. Chemically, carbohydrates contain carbon, hydrogen, and oxygen—the same elements contained in fats, but in different relationship. As nutrients, carbohydrates may replace fats within certain limits—one hundred grammes of fat being equal to two hundred and forty grammes of carbohydrates.

There are a number of substances which belong to the group of carbohydrates, and of this number starch forms the most important one. Starch is contained in potatoes, in grains, et cetera. It has been shown that as high as six hundred to seven hundred grammes of starch may be transformed into sugar and absorbed by the human organism in twenty-four hours. As in the case of albumen, the degree of digestion and absorption of starch depends, largely, upon its source and the condition in which it is contained in the food-stuffs. Another carbohydrate of importance is dextrine, which chemically occupies a position between starch and sugar. A third group of substances which belongs to the class of carbohydrates are the sugars. The most important of the sugars are cane-sugar, grape-sugar, milk-sugar, and levulose or fruit-sugar. Cane-sugar is inverted in the gastro-intestinal canal into equal quantities of dextrose and levulose. Sugar is a very popular food-stuff and one which is consumed in enormous quantities the world over. It has been estimated that England consumed in 1895, eighty-six pounds per capita, United States sixty-four pounds, Denmark and Switzerland consumed forty-five pounds per capita, France, Germany and Holland about thirty pounds, while Italy, Greece and Turkey consumed about seven pounds per capita.

The question of the value of sugar as a nutrient has recently been subjected to a very exhaustive series of experiments. It has been shown that sugar lessens, very decidedly, the degree of muscular exhaustion during severe exercise. These experiments have recently prompted the German government to add considerable sugar to the daily rations of its soldiers. The limit seems to be about five to six ounces; beyond this amount irritation of the gastro-intestinal canal is produced.

In the animal organism a peculiar carbohydrate is found which is termed glycogen. It is dependent upon the carbohydrates (and albumen) taken into the gastro-intestinal tract. It is found in the liver to the extent of eleven per cent. Like starch, it is converted into sugar by diastasic ferments. Only a small quantity of the carbohydrates are ingested in the form in which they are absorbed. These are, grape-sugar, milk-sugar, levulose, and small quantities of cane-sugar. The greater quantity of carbohydrates is taken in the form of starch contained in potatoes, vegetables and bread, but it is never absorbed in the raw state.

Starch is converted into sugar by the action of a diastasic ferment found, principally, in the mouth and intestines, but it is not wholly absent in any of the secretions. This conversion of starch into sugar takes place in an alkaline, neutral, or slightly acid reaction. The end products of starch digestion are achroodextrin, maltose and about one per cent. of glucose. When cane-sugar is introduced into the stomach it is inverted by the hydrochloric acid of the stomach secretion into levulose and dextrose; only a small amount of cane-sugar being absorbed unchanged. Levulose (fruit-sugar) and milk-sugar are absorbed without undergoing any change, but milk-sugar simply undergoes oxidation and is not assimilated by the organism. When carbohydrates enter the circulation they are entirely oxidized into water and carbon dioxid, or stored up for further use. Both in the liver and in the muscles carbohydrates are stored up in the form of glycogen. The liver and blood furnish glycogen to the various tissues of the body in the form of glucose and not in the form of glycogen, although, a trace of glycogen is found in the blood. Any surplus of carbohydrates is transformed into fat, but it is not known where this conversion takes place.

As already mentioned, carbohydrates are, normally, very well absorbed by the intestinal tract. On an ordinary diet containing two hundred to four hundred grammes of carbohydrates we find but traces undigested in the feces. But, one and one-tenth per cent. of the starch in bread remains unabsorbed.

In considering the subject of experiments on the nutrient value of food-stuffs, it is also necessary to take into consideration the composition of the feces. The feces consist of the residue of the stomach and intestinal secretions, of undigestible matter and of nutritive material which escapes both digestive and absorptive action. Even during starvation there is a certain amount of feces, as was shown in the observations upon CETTI, the professional faster, who daily passed twenty grammes of feces containing nitrogen and fat. The ingestion of food increases the nitrogenous secretions, as was shown by feeding persons upon a purely carbohydrate diet.

CALORIC AND NUTRITIVE WORTH OF FOOD-STUFFS.

When nutritive materials become a part of the organism either in the form of blood or in the form of tissues and organs, they are subject to constant chemical changes which consist, for the most part, in oxidation processes.

The various tissues, fat, muscular and nervous, are differently affected when the organism is subjected to an excessive strain either in the form of inanition or excessive labor.

The skeletal muscles form about forty-three per cent. of the entire body, and as the muscles contain about one-quarter of the entire amount of blood of the body they are the seat of a greater part of the metabolic changes of the system; the next important seat in this respect is the liver.

Fat constitutes about sixteen per cent. of the body weight, in some instances as high as twenty-eight per cent., or even more. When food was entirely withheld from a man weighing seventy-one kilos, during active labor, it was found that seventy-five grammes of albumen and three hundred and eighty one-thousandths grammes of fat were lost by the organism. In starvation, the greater loss of the organism, it will be seen, falls upon the fat supply, then follow the glandular organs and muscles and, lastly, the nervous system.

Of the metabolic processes of the various structures of the organism, least is known of the nervous system. The writer instituted a series of experiments* on the phosphoric acid elimination in the waking state and during sleep, and it was shown that during sleep, the relative quantity of phosphoric acid was increased. With the exception of these and a few other experiments, we do not possess any data of metabolic processes which might be referred to the nervous system.

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* "Zur Physiologie des Schlafes." *Archiv f. Anatomie u Physiologie.*

Notwithstanding the circumstance that the nervous system has evaded the application of any direct experimental investigation, and although in starvation it shows the least influence of the withdrawal of nutriment, yet, it may after all be the seat of important metabolic changes which, through our present methods of experimentation, are expressed simply in the form of the general fat, carbohydrate and albumen metabolism.

As we pointed out before, food materials may, according to the nutritive state of the organism, undergo immediate oxidation upon entering the system, or they may be stored up as reserve material. It is quite probable that oxidation takes place only after a food material has become an integral part of a tissue, for the weight of evidence seems to indicate that materials do not oxidize in the blood. The oxidation of albumen, fat and carbohydrates, produces energy either in the form of heat, or mechanical work.

In determining the metabolic importance of a food-stuff, or the influence of chemical substances upon the general deportment of nutrition, it is necessary to carefully take into account the quantity, quality and caloric value of the daily income and output of the food materials introduced into the system. By income we mean the quantity of nutrient material which is introduced into the gastro-intestinal canal. By output we refer to the end products of metabolism, such as urea, uric acid, kreatin, kreatinin and carbon dioxid.

Along with these end products, we also chemically determine the undigested and unabsorbed materials which, along with the residue of the gastro-intestinal secretions and undigestible matter, constitute the feces. The end products of metabolism, which leave the organism, possess a lower degree of potential energy than the food-stuffs from which they result. When an individual is put upon a diet suitable in every respect to cover the waste material of the organism, the income and output can be exactly accounted for. It is true, that a controversy has existed for years in regard to a so-called nitrogen deficit, but proof is wanting, at the present time, to show that such a deficit really takes place. Irrespective of how this controversy may terminate, we know that all but two-tenths to one gramme of albumen introduced into the system, can be accounted for by chemical analysis of the undigested, unabsorbed, and excreted nitrogen. Albumen contains sixteen per cent. of nitrogen, so that to determine the quantity of albumen which a given amount of nitrogen represents, it is simply necessary to multiply nitrogen by six and twenty-five one-hundredth per cent. Meat or muscle contains three and four-tenths per cent. of nitrogen, so that every gramme of nitrogen in the urine represents thirty grammes of meat or muscle. Therefore, if during experimentation an amount of nitrogen is found in the urine greater than the quantity absorbed from the gastro-intestinal canal, it indicates that for every additional gramme of nitrogen thirty grammes of muscle have undergone disintegration.

Knowing the potential energy and caloric worth of the various food-stuffs and the composition, potential energy and caloric worth of their end products, it is possible to determine the amouut of energy furnished to the system. This potential energy of food-stuffs is liberated, for the most part, in the form of heat and the calorie, or that amount of heat necessary to raise one kilogramme of water one degree centigrade, is therefore used in estimating the nutritive value of food-stuffs. When a nonnitrogenous substance is subjected to the action of a calorimeter it is oxidized into carbon dioxid and water. It has been found that one gramme of fat yields nine and three-tenths calories, and that one gramme of carbohydrates yields four and one-tenth calories—either in the animal organism or in the calorimeter. The potential energy possessed by the end products of albumen metabolism (urea, uric acid, ammonia, et cetera,) makes its estimation more difficult than that of carbohydrates and fats. It has been shown that in the calorimeter, one gramme of albumen furnishes five and five hundred and sixty-seven one-thousandths calories. Substracting the caloric worth of urea, uric acid and ammonia, one gramme of albumen is equal to four and one-tenth calories. The caloric worth then of the representative food-stuffs reads:

One gramme albumen = 4.1 calories.
One " fat = 9.3 "
One " carbohydrates = 4.1 "

As we have seen before, these food-stuffs may, within certain limits, replace each other. It has been shown that ten parts of fat are equal to twenty-three parts of carbohydrates. One hundred grammes of carbohydrates, one hundred grammes of albumen or forty-four and one-tenth grammes of fat are each equal to four hundred and ten calories.

Everyone knows, empirically, that a certain amount of nutriment is necessary, at definite intervals, to protect the organism against starvation, for if an insufficient amount of food be ingested, the organism lives upon its own tissues. It is also known that during mechanical work the organism draws more heavily upon the supply of nutrients than when the body is in a relatively quiescent state. By estimating either the quantity of food-stuffs ingested by an individual whose body weight remains constant, or by determining the income and output of the food-stuffs, it is possible to determine the amount of each nutrient principle necessary to maintain a nutritive equilibrium.

In considering the nutritive worth of a food-stuff, we estimate it by the number of calories each gramme of nutrient material produces when it enters the organism, thus: *

Albumen .... 67.80 × 4.1 = 277.98 calories.
Carbohydrates 494.22 × 4.1 = 2026.30 "
Fats......... 60.49 × 9.3 = 562.25 "

2866.83 calories.

In reference to the statement made above in regard to the increased, respectively decreased, amount of nutrient necessary during mechanical labor and rest of the organism, it has been determined that: during absolute rest the organism requires for every kilogramme of body weight, thirty to thirty-four calories, in twenty-four hours, —during light exercise from thirty-four to forty calories, for a medium

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* Breisacher: "Groesse des Eiweissbedarfs des Menschen," *Deutsche Medicinische Wochenschrift.*

forty to forty-five calories, and for hard work forty-five es. Upon these points all authorities are, with very on, agreed, but in regard to the relative proportions of the d-stuffs and especially the minimum quantity of albumen to sustain life, there is yet a great diversity of opinion.

osing this paper, we shall detail a series of experiments* med by the writer in which the minimum amount of albumen ed by an organism, forms the principle subject of investigation.

The first exact research, in regard to the question as to the amount albumen necessary to the animal organism, was made by VOIT, using the dog as his experimental subject. According to the original results obtained by VOIT, it was taught that the albumen excreted in the form of urea during starvation, was two and one-half times less than the quantity excreted when the animal is maintained upon the minimum quantity of albumen necessary to preserve health. That this statement was erroneous was first shown by E. SALKOWSKI and then by J. MUNK, by their experiments upon dogs. Stimulated, undoubtedly, by these experiments, VOIT published an article entitled: "Investigations Upon the Diet of a Vegetarian", but in the series of observations, which VOIT detailed, his vegetarian lost daily from two to three grammes of albumen from his organism.

Following this publication the original research of PESCHEL, KUMAGAWA, HIRSCHFELD, and that of the writer appeared, all of which proved that the dictum of VOIT, that one hundred and eighteen grammes of albumen were necessary to maintain the nutritive balance of an organism could be deviated from, provided that the loss of the total caloric value of the daily ration, resulting from the withdrawal of a certain percentage of albumen, be covered by an addition of starches and fat to the diet.

I append here a brief summary of the caloric value per kilo, body weight, of the food-stuffs used by the experimenters referred to above.

	Body Weight.	Albumen.	Albumen, per Kilo.	Calories, per Kilo.	Period of Experiment.
	K. lbs.				
RUBNER	72 (158)	38.8	0.539	63.5	3 days.
HIRSCHFELD ...	73 (160)	35.4	0.485	47.4	8 "
KLEMPERER ...	63 (138)	25.1	0.400	80.0	8 "
KLEMPERER ...	65 (143)	26.6	0.410	77.2	8 "
PESCHEL	79.5 (174)	34.2	0.430	47.1	8 "
KUMAGAWA	48 (105)	37.8	0.788	51.6	9 "
VOIT..........	57 (125)	32.4	0.570	47.5	ordinary diet
BREISACHER....	57 (125)	51.4	0.900	50.3	30 days.

The experiments which the writer performed upon himself extended over a period of thirty-three days. The diet contained

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*BREISACHER: "Groesse des Eiweissbedarfs des Menschen," *Deutsche Medicinische Wochenschrift.*

sixty-seven and eighty-hundredths grammes of albumen, four hundred ninety-four and twenty-two hundredths grammes of carbohydrates and sixty and forty-nine-hundredths grammes of fat, making a total caloric value of twenty-eight hundred sixty-six and eighty-three hundredths.

In the following chart, the quantity and nature of the food-stuffs furnishing this amount of energy are given in detail.

Materials.	Quantity.	Albumen. (Nitrogen 6.25)	Carbohydrates.	Fat.
Meat	75 grammes.	15.40	....	1.33
Rice.........	200 "	12.36	149.60	0.66
Potatoes	225 "	5.49	45.00	....
Bread........	200 "	17.92	120.00	....
Starch	70 "	0.28	69.72	....
Eggs	50 "	6.27	....	6.05
Milk.........	150 "	5.60	7.39	6.75
Sugar........	40 "	....	40.00	....
Butter	50 "	0.43	....	45.70
Beer.........	700 "	3.67	62.51	....
Tea..........	760 "	0.58	....	....
		67.80	494.22	60.49

67.80 grammes albumen 10.84 grammes nitrogen.

Albumen....... 67.80 × 4.1 = 277.98 calories.
Carbohydrates . 494.22 × 4.1 = 2026.30 "
Fats.......... 60.49 × 9.3 = 562.56 "

2866.84

During the last thirty days of the thirty-three days of experimentation, the average nitrogen excretion by the urine was eight and twenty-three hundredths grammes for every twenty-four hours—which represents fifty-one and forty-three hundredths grammes of albumen. The feces contained an average of two and sixty-one hundredths grammes of nitrogen for every twenty-four hours—representing sixteen and thirty-one hundredths grammes of albumen, which added to the fifty-one and forty-three hundredths grammes, amounts to sixty-seven and seventy-four hundredths grammes of albumen as compared with sixty-seven and eighty hundredths grammes contained in the diet.

During the experiments the writer remained perfectly well and at the expiration of the investigation, weighed slightly more than at the beginning.

Although, at the time of the publication of this work, there was considerable controversy offered against the advisability of practically adopting a minimum quantity of albumen to nourish a human individual, the writer ventured the following statement:

" As long as an organism is in a state of nitrogen balance, it is clear that neither the separate organs nor the entire system can be in disharmony as regards its nitrogen metabolism. And it follows from this, that the quantity of albumen which is necessary to maintain an organism in a nitrogen-balance, expresses at the same time the quantity of albumen which is at least necessary for the nitrogen waste of a fully developed organism."

The thought expressed in the above statement has been supported by numerous experiments, one of which I shall briefly mention here.

It has been shown by experimentation, that during severe physical labor, the total nitrogen is not very appreciably increased over the quantity excreted during ordinary work. Now, this fact alone is sufficient to suggest that, possibly, the degree of nitrogen metabolism is not as important as would be supposed by the enormous quantity of albumen ingested and excreted by the average individual.

However, whether the absolutely minimum quantity of albumen that will maintain nitrogenous equilibrium represents every nutritive demand made, ordinarily, upon albumen by the system, is another question which only time and experimentation can solve.

The practical worth of the establishment of the truth of these questions is evident, for in various diseases resulting from permanent or temporary lack of digestive and absorptive power, or in conditions in which it is advisable to lower the total nitrogen output, it is of extreme importance to exactly know the minimum quantity of albumen necessary to maintain the total nitrogen (and albumen, we may add) metabolism of the system.

In some future publication I shall give the results of some experiments which are now in progress and which, I think, will materially corroborate the majority of statements made in the present paper.

65 WASHINGTON AVENUE.

DIABETES MELLITUS, AND ITS TREATMENT.*

BY JAMES H. REED, A. M., M. D., BATTLE CREEK, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

FOR several years past, I have devoted a great deal of time to the treatment and study of this disease and have had some hundreds of cases come under my care, either for treatment or consultation, therefore the ideas that I advance are those which have presented themselves to me in my practice, and are accentuated by personal experience and not dependent upon the observation of another. I must say, however, in justice to a great many authorities, whose contributions I have read with much pleasure, that I have gleaned from them much valuable information. I have also made clinical observations with their prescriptions and have added thereto my experience and profited by the indications as they have presented themselves. A great many of you who have read my first and second papers upon this subject, will notice as I proceed that I have changed my mind considerably regarding the treatment of diabetes, as compared with my first experience. An old saying has it that "wise men change their minds, fools never do", hence if you will pardon the implied compliment, this change, I hope has been to the betterment of the condition of my patients.

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* Read before the MICHIGAN STATE MEDICAL SOCIETY at the Mackinac Island meeting, July, 1900.

In my other papers, you will note that I have strenuously laid down a rigid diet, from which I am compelled to make retraction. I do not wish to be misunderstood, neither do I wish you to think that I do not advocate a strict line of dietary, but I mean to say that I now permit a greater latitude for diet than I ever did before. One of the great mistakes the general practitioner makes, and one which confronted me in the earlier part of my practice, is the fact that we are continually studying the action of diuretics and thus treat our patients from a diuretic standpoint, almost forgetting the liver, spleen and other organs.

I have frequently had the soubriquet applied to me of being a "crank upon urine analysis", for I make it a rule, almost in every case, which comes under my care, to get a sample of the urine for analysis. If the patient is not willing to pay for the analysis, I make it anyway to aid me in a correct diagnosis. I do this, in all cases of obscure chronic diseases, and if sugar is found present, I determine the quantity as well as the influence of food upon its elimination. The presence of sugar, however, does not always mean that the patient is diabetic, for the elimination of glucose only after the ingestion of foods containing sugar should not be diagnosed as diabetes, but alimentary glycosuria. I find after considerable experience in treatment that a partial but not absolute avoidance of all articles of food containing sugar or starch, such as confections, potatoes, farinaceous foods, beer, and sweet wines, with the substitution, therefor of foods rich in fats and albumen, green vegetables, stewed fruits, small quantities of bread and saccharine, together with gymnastic exercises of a moderate nature, stopping before reaching the tiring point, and above all, a careful attention to the skin by alcholic rubs and salt baths, the proper regime to produce the best results. DONKIN has met with considerable success by the skimmed-milk treatment.

It is not my intention in this paper to go into the etiology of the disease, as I am quite sure I could not throw any new light upon the subject, but as hereinbefore stated will only give a few impressions as they have presented themselves in my practice.

An eminent authority says that diabetes is a constitutional disease, produced by malassimilation in the stomach, liver, intestines, or in the blood, especially marked by a very excessive discharge of urine which is always saccharine; excessive thirst, and great bodily emaciation. THOMAS WILLIS, in the time of CHARLES II, first observed the constant presence of sugar in the urine. The quantity of urine passed may vary from ten to thirty pints or more in a day, with intense thirst, the patient often drinking many quarts or even gallons of liquids daily. The density of the urine is usually increased, and from forty to nine hundred grains of sugar will be passed in each pint of urine, so that in a few months an alarming quantity of sugar has been passed. The drain on the constitution is very great, the teeth sometimes falling out; and although life may be prolonged, the disease is very intractable.

There are many and various causes ascribed for diabetes, such as malaria, alcoholism, sexual excesses, and syphilis. I agree in the main with those, but disagree in regard to the latter, as I have had patients come under my care who developed syphilis years before they became diabetic. **Purdy** says: "I have no doubt that overeating frequently induces glycosuria, and in people predisposed to diabetes, it sometimes leads to that disease. This result is more likely to follow from overingestion of starchy foods. In some cases, the disease seems to be brought about by supernutrition of the portal system." It must not be understood that I pass over glycosuria lightly, for I consider it the main symptom of diabetes mellitus, and a distinction must be made between a mild form, elimination of sugar only after ingestions of carbohydrates—alimentary glycosuria—and a severe form, the elimination of sugar upon a diet of meats and fats; in some instances as much as ten per cent. of sugar may be present.

I will not at this time go into the entire technique of my treatment, or of different tests which I have used to demonstrate the presence of sugar, and to determine the quantity thereof. This procedure will be found described in my preceding papers. Therefore, it would be a waste of time and an encroachment upon your patience to describe them again. Suffice it to say that after the determination of the presence and the amount of sugar present, the next thing to be done is to apply a proper treatment, and I shall later describe one which has been the most successful in my practice.

I take the liberty of mentioning a few exaggerations of treatment, which I noticed in the *Medical Gazette*, of Strasburg, and quote in consequence of the fact **Dieulafoy** seems to lay so much stress upon antipyrin and arsenate of sodium, which are two drugs I have used with only various degrees of success. In a recent lecture **Dieulafoy** spoke of the reaction which had taken place against the overtreatment of diabetes. He divides the cases into two categories, calling the first the mild (petit) and the second the severe (gros) form. The former includes those in which the quantity of sugar does not exceed ten to fifteen grammes in the twenty-four hours. These have no marked import, and may pass unnoticed for a long time, because of the absence of such telltale signs as carbuncles, et cetera. In the severe form the patient urinates from one hundred to two hundred grammes or more of sugar. In spite of this enormous loss, these patients, are not necessarily more threatened than the others, and there are those among them, who, without any precautions, stand their sugar loss quite well. Attention is drawn to the coexistence of azoturic with saccharine diabetes.

As to treatment, if twenty-five to thirty grammes of sugar is passed, it is not necessary to resort to the severe regime so often forced upon patients. The chief point is to see to it that the patient does not lose flesh. It is a mistake to restrict the diet to the extent to which it is so often done. Fifteen grains of antipyrin given morning and night with six to eight grains of bicarbonate of sodium will show a disappearance from the urine of from thirty to fifty grammes of sugar within thirty-six hours. The speaker prefers, instead of Fowler's solution, the arsenate of sodium in a solution of three to eighty grammes of water, of which a teaspoonful is to be taken at each meal. He also believes that it is not necessary to suppress milk in the dietary because of the lactose it contains, but thinks it should be given, as lactose is not transformed into glucose. In cases of severe diabetes the patient should be allowed to drink freely to wash out the sugar if possible, instead of letting it accumulate.

Postmortem examinations of diabetics have shown enlarged livers. Sometimes the enlargement is quite slight, while at other times it reaches two or three times its normal size. The most constant changes found, are marked dilatation of the hepatic capillaries and hyaline thickening of the walls of the latter; slight interstitial overgrowth surrounding the hepatic cells, either individually or in clusters extending along the walls of the interlobular plexuses. The vessels are indistinct in their outlines with a diminished amount or absence of normal fat contents. The lungs exhibit very constant lesions. They are partly phthisical and partly pneumonic in character, hepatization, caseation, and excavation being the leading features. The pancreas is often found to be subject to many anatomical changes in diabetes with which there is a great sympathy, if not causal relationship. The most common lesions found in autopsy have been fibrosis or hyperplasia of the connective tissue, fatty degeneration of the gland-cells, cancer, calculous concretions in the ducts, with or without obstruction, and in the latter case atrophy or cystic dilatation (PURDY).

I noticed in the *London Lancet* an article writted by ROBERT SAUNDBY, in which he says that under normal conditions the liver stores up in the form of glycogen, carbohydrate material, taken into the body as food, and by means of its regulating mechanism converts this into sugar and passes it into the circulation in such quantities as needed. Under abnormal conditions the liver no longer stores up glycogen, but allows the whole of the carbohydrate food to pass at once into the circulation as sugar, while any stored glycogen is at once converted and discharged. These abnormal conditions may be produced by certain traumata, shock, et cetera, especially by the puncture of the fourth ventricle, CLAUDE BERNARD's noted experiment. These facts, however, do not explain the pathology of diabetes, the disease in which the excretion of sugar goes on often without regard to the ingestion of carbohydrates or the amount of glycogen stored. PAVY has shown that the albuminous molecule splits up and one division is a carbohydrate molecule from which sugar is formed, thus partially explaining the above fact, but we have still to postulate a further failure of the sugar-destroying function of the tissues in diabetes. It appears that under interference from certain agencies the liver loses its power of storing up glycogen. The tissues, therefore, gorged with sugar, lose their power to consume that substance and glycosuria results. In the pathogenesis the nervous system undoubtedly takes a part, and the author finds from his examinations, that SMITH's theory of anxiety producing this condition in undue frequency among railway employees, has some support from facts. Pancreatic disease has also been known to produce diabetes, though this is not invariably the case. Its physiologic relations to the glycogenic function of the liver remains to be elucidated. The theory provisionally accepted is that the pancreas forms an internal secretion which prevents the discharge of glycogen from the liver.

The relation of diabetes to a definite hepatic lesion is as yet not satisfactorily established, and the condition described by HANOT as "bronzed diabetes" is probably a peculiar form of cirrhosis associated with glycosuria rather than a complication of diabetes. Saundby considers it probable, however, that there is a class which the term "hepatic diabetes" could be provisionally applied. We must not be content to call every case of glycosuria, diabetes, and put it on routine treatment. Our opinion must often be suspended and the case studied. He also warns the profession that the reduction of copper does not necessarily mean sugar. Unfortunately the cases are common enough in which the diagnosis is plain. The remainder of his paper is given to the subject of treatment, mainly dietetic, and he gives tables of diets with their heat and carbohydrate equivalents. He does not believe in sending advanced cases to distant health resorts. Exercise must be moderately indulged in, as fatigue is often fatal.

In order to show the percentage of deaths from diabetes as they occurred in several states in the United States during the year 1890, I herewith present a table, for which I am indebted to Purdy:

STATE.	TOTAL DEATHS.	DEATHS FROM DIABETES.	RATE PER 1,000.
Alabama	17.929	10.	.55
Arkansas	14.812	11.	.70
California	11.530	23.	1.99
Connecticut	9.179	31.	3.37
Georgia	21.549	24.	1.11
Illinois	45.017	98.	2.11
Indiana	31.213	85.	2.72
Iowa	19.377	47.	2.42
Kansas	15.160	24.	1.58
Kentucky	23.718	41.	1.31
Louisiana	14.514	15.	1.03
Maine	9.523	42.	4.41
Maryland	16.919	19.	1.12
Massachusetts	31.149	65.	1.96
Michigan	19.743	53.	2.68
Minnesota	9.037	16.	1.99
Mississippi	14.583	13.	.88
Missouri	36.615	52.	1.42
Nebraska	5.930	10.	1.68
New Jersey	8.474	10.	1.18
New York	88.332	195.	2.20
North Carolina	21.547	25.	1.11
Ohio	42.610	139.	3.23
Pennsylvania	63.881	116.	1.81
South Carolina	15.728	10.	.63
Tennessee	25.919	44.	1.69
Texas	24.735	19.	.76
Vermont	5.024	32.	6.36
Virginia	24.681	29.	1.13
Wisconsin	16.011	45.	2.81

It may first be noted that the mortality report of the United States census for 1880 gives a total mortality for the country from all causes of 756,893. Of these, 1,443 were returned under the head of glycosuria. This gives an average ratio of deaths from diabetes for the whole country of 1.90 per thousand deaths.

It will be noticed by this table that the greatest number of deaths have occurred in colder sections of our country, which goes to prove conclusively the ground I have taken that climatology has a great deal to do with diabetes, and yet at the same time, I cannot pass over the fact that in Russia—a severely cold climate—the disease is scarcely known, whereas in some countries near the equator it is prolific. At the same time the fact stares us in the face that the colder sections of our country have a very much larger percentage of diabetes than the warmer sections.

The most fearful thing that confronts the practitioner in the treatment of diabetes is diabetic coma, Kussmaul's coma, sometimes called acetonemia. These cases are very alarming, at the same time, not necessarily fatal, as a great many prominent authorities recount cases of recovery, although when fatality ensues it generally takes place in two or three days. I have had several cases of this kind and have been very successful in treating them by small doses of antipyrin, and rectal injections of hot water and bicarbonate of soda, in the proportion of two drachms to the pint.

Constipation is almost the invariable accompaniment of this disease and should be one of the first cares of the physician. In the first stages, small doses of calomel and bicarbonate of soda should be given at intervals, but observation has taught me that the best results can be obtained by giving some of the aperient waters in the morning before breakfast, rather than to resort to purgative medicines. When the digestive and assimilative powers become too enfeebled, constipation follows and diabetic coma is precipitated.

Since the most important functions of the liver are:

(a) The elaboration and secretion of bile-digestion of fats;

(b) The conversion of the sugar of the food into glycogen;

(c) And the disposition of disintegrated red corpuscles, of toxic substances, therefore, it is absolutely necessary that we pay particular attention to this organ in the treatment of this disease. The principal symptoms of diabetes being glycosuria, and the abnormal nutrition caused by constant loss or nonassimilation of nutritive material, it is therefore necessary that we should find out what line of diet is suitable for each individual case. The more closely I have studied the diet question, the more I have been convinced that it is impossible to form a strict line of diet which would be adaptable to every patient, therefore, the diet which I have suggested in my foregoing papers, was intended to give in a general way an idea of what foods are best for diabetics.

Kraus says that since the disease became known, nearly all the physicians try to reduce the glycosuria by restricting the carbohyhrate food, but during a short period a number of physicians were led by the entirely false conclusions that a greater amount of carbohydrates must be introduced in the diabetic organism to make up for the loss caused by glycosuria. He cites an instance in order to establish this fact that Schiff, the celebrated physiologist, who was himself a diabetic, hastened his own death by following out such a diet.

In regard to stimulants, I must positively interdict them, as nearly every class of wines and liquors manufactured, either foreign or domestic, contain a greater or less percentage of sugar; rum, gin, and whiskey being the exception. At the same time, I cannot help but think that when used moderately, alcohols are worthy of our consideration, the quantity to be decided on by the physician, never being allowed to reach a degree where any toxic effects can be felt.

Lepine, who has given considerable study to diabetes, is credited with saying, on the assumption that the cause of diabetes is a deficiency in oxidation, and only in certain cases an increase of sugar production, divides the substances into those (1) which increase glycolysis; (2) which diminish the production of glycogen; (3) which possess a sort of mixed or unknown effect. He says further that inhalations of oxygen and compressed air have but little or no effect on the disease, permanganate of potash is not followed by any particular benefit, while electrotherapy and organotherapy—thyroidin—are still less satisfactory. In my own practice, I have found a great deal of benefit derived from the use of antipyrin, quinine, salol, bicarbonate of soda, sodium arsenate, eulexine, which latter drug has been one of my sheet anchors in the treatment of this disease. In a former paper, I have given the complete formula of eulexine, so it is unnecessary to repeat it, but I will say in addition that to its good effects is credited the diminution of sugar excretion. The good effects from such preparations as phosphorus, strychine, iron, pilocarpin, iodin, iodoform, ergotin, calcium, jaborandi, potassium bromide, creosote, and codeine are all very well in their place but are merely incidental. When the disease is pancreatic, use pancreatin, although Lepine reports very brilliant results having been attained after the use of raw or cooked sheep's pancreas, and also after enemata of pancreatic juice. Opium has always been considered one of the sovereign remedies in diabetes, on account of producing its effects through a diminution of glycogen production, or the sugar production from the glycogen or both. My experiments with it have not been satisfactory, as there is not only danger of a bad habit, but danger of chronic constipation, and as seven-tenths of the cases of diabetic coma are directly caused by constipation it is advisable to steer clear of that drug as long as possible.

It must not be forgotten in relation to my treatment that in whatever state I find the disease, whether it be nervous, traumatic, pancreatic, hepatic, or rheumatic, I never lose sight of the citrate and carbonate of lithia, which I regulate according to the amount of sugar present, and allow my patients to drink *ad libitum.* Uranium nitrate is by several authorities highly recommended for nervous diabetes. I have exhibited it in several cases but without satisfactory results, therefore I cannot recommend it.

I could fill page after page with my experience and cases, but owing to the brief length of time, allowed me by the rules of our association, I will have to bring this paper to a close by laying before you a few cases which have come under my observation, showing you the treatment which I have followed, and the success which I have had, and, if you will pardon the vanity of the expression, which is based upon my success. I have but one diabetic death record in five years, although my cases have run up into the hundreds.

Case CLXXXVII.—I was called to see a patient in one of the southern states, in October, 1899, and found a male, aged fifty-six, weight one hundred seventy-four pounds, whose history of disease was very obscure. Patient had always enjoyed good health, and strong vitality until two years previous when he first noticed a great discharge of urine which made him uneasy. He consulted a physician who upon examination pronounced his case diabetes mellitus. He had been under the treatment of several physicians before he came to me. I found him of splendid physique, well proportioned, good muscular development, brilliantly educated, but withal exceedingly sensitive and of nervous temperament. He was secreting seven pints of urine in twenty-four hours, of a light diabetic straw color, with a specific gravity of 1028. The disposition and character of the urine was neutral, while the reaction was acid. About three years previous he had been operated upon for hemorrhoids, from which time he dated his nervousness. At first he was troubled with slight difficulty in his eyesight, claiming that mists seemed to gather before the eyes, and at the time of my visit was suffering with double vision of such an excruciating character that it made him nearly wild, and he feared that he was losing his sight. In walking he would have dizzy spells, and frequently feel as if he were going to topple over. He had the other attending diabetic symptoms; constipation, bad taste in the mouth, the odor of chloroform from breath, and was a remarkably good subject for diabetes, inasmuch as his physique would never have portended such a disease.

I immediately began treatment, and at the time that this paper is being prepared he is absolutely in a normal condition of health. There is no further excretion of sugar. Specific gravity of urine registers 1022, and the reaction is normal. A letter is now before me containing these words: "God bless you, Doctor, for having saved my life. I owe you a debt of gratitude which I can never repay. I am feeling better now than I was before I was taken ill." My treatment was eulexine, antipyrin, bicarbonate of soda, citrate of lithia, sodium phosphate, strychnine and calomel.

Case CLXXXV.—A female, twenty years of age, height five feet five and one-half inches, weight ninety-five pounds. This patient was from a brother physician, who resided in another state and who called me in consultation. The patient had a good clean family history, showing that neither tuberculosis nor diabetes existed during three generations—as far as they could remember. She first became alarmed about her condition in October, 1899, although prior to that she had noticed an excessive flow of urine, but on account of modesty, had not mentioned it to her family. In the month named, she became a victim to boils, having them scattered all over the body; had a bad taste in her mouth, with excessive dryness; unquenchable thirst; breath, odor of chloroform; oxybutyric acid intoxication, although at the time of these attacks, she did not know what ailed her. Constipation very persistent, had to get up several times in the night to void urine, which measured as much as ten pints in twenty-four hours. Appetite was ravenous, eyesight varying, sometimes vision clearer in the morning than in the evening and *vice versa*. Very easily tired, could walk only a short distance, yet there was no asthmatic or bronchial difficulties; had severe itching of scalp and much loss of hair.

I immediately placed her on a treatment of calomel and soda, bicarbonate of soda, strychnine, belladonna and ipecac, in combination, antipyrin, sodium arsenate, sodium phosphate, and eulexine. At this writing this patient has been under my care four months, and has increased in weight twelve pounds, sleeps well, and does not have to get up at night to void urine. Specific gravity 1026. The fermentation test shows sugar reduced to one and three-fourths when it originally was twenty-one and seventy-eight hundredths per cent. She takes neighborhood journeys of fifteen and twenty miles without more than normal fatigue, whereas before, she would never leave home. Eyesight, appetite, and thirst are normal, and boils have all disappeared, and skin is in fine condition. I report this case in order to show the sugar reduction, and at the same time, what can be done with my method of treatment. One must not lose sight of the fact that when I took charge, this patient had been pronounced incurable and I had my misgivings as to whether or not I could accomplish any beneficial results. The physician who sent me this patient, paid me a compliment in following out my instructions, and has positively insisted that no deviation be permitted. It is my firm belief that I will be able to effect a cure in this case, for certainly what has been accomplished in the past four months is a presage of the good that is to come. The peculiar physicial conditions which confronted me in this case showed plainly that eulexine was indicated, so I at once prescribed it, and it has been used continuously. My other treatment has been altogether adjuvant, hence I feel more than pleased with the wonderful success that I have observed, and at some future time I hope, if not before this association, before my county association to report an absolute cure.

Case CLXL.—In March of this year I was called to see a young woman twenty-six years of age, married about three years, no children, clean family history. No tuberculosis, diabetes or Bright's disease known in the family; one of her grandparents died with heart disease. Patient had a beautiful complexion, her nerves seemingly strung to the highest tension, eyes restless and uneasy, great fear of being alone, but soon tired of company, and had insomnia. About two years before, she had suffered a miscarriage, attended with ruptured perineum, from which time she dates her nervousness. Analysis of urine showed specific gravity 1030, uric acid abundant; disposition volatile; character inflammatory; albumen, a trace; fermentation test showed sugar; examination showed vaginitis and urethritis. You will readily see that in this case I had a complication of troubles. My first duty was to remove the inflammation which I did by applying local douches, the administration of lycetol as a uric acid solvent, and a soothing urethral suppository. In the course of three days, I had such an improved condition that I felt warranted in proceeding with my other treatment, and I did so, using calomel and soda, strychnine; aloin, strychnine, belladonna and ipecac in combination: antipyrin, sodium arsenate, sodium phosphate, eulexine, and citrate of lithia. This line of treatment has been continued uninterruptedly, and is being continued to this day. I will close this report with her condition on June 2, that being the last time I saw her. The record of that date shows the specific gravity of her urine was 1020, uric acid normal, no inflammatory condition, no albumen, and no sugar. I yet receive a sample of her urine every week, and my records show that she has been enjoying normal health since May 20, so that I consider this almost an absolute cure. At the same time, however, I have advised the continuation of my prescription indefinitely as it is necessary that the medicines be continued in order to cement the cure.

Case CLXLII.—A gentleman, age fifty years, height five feet, nine inches, weight one hundred eighty pounds. No history of tuberculosis, diabetes or Bright's disease in the family. In fact it never has been my good fortune, to record the history of a patient that had been more thoroughly healthful than this man. He had served four years in the army; had been badly wounded; had passed through epidemics of typhoid fever, yellow fever, and smallpox, but prior to the present trouble had never known any sickness in his life. He was suffering from very great nervous depression at the time, and about once in every ten days or two weeks his stomach would become irritable, and he would have pains in his limbs and frequent dizzy spells, when he would have to catch hold of something to keep from falling. His extremities were cold, eyes were easily suffused, and reading at all times was laborious to him. His memory was poor, he suffered with insomnia, and when he did sleep he was always troubled with dreams; in fact his condition was morbid. He states that he had an excessive flow of urine, and that in the winter he fell upon the ice, striking on the back of his head, cutting his scalp about two or three inches.

I made an analysis of his urine, which showed specific gravity 1020, color light diabetic straw, transparent in appearance, slightly alkaline in reaction, no albumen. Fermentation test showed three per cent. of sugar. He was constipated, having been in the habit of taking some purgative medicine to relieve the bowels. It will be noticed from its history that this case is a very peculiar one, as it plainly showed neurasthenia and diabetes.

I immediately prescribed lycetol, calomel, and soda; aloin, strychnine, belladonna and ipecac in combination; with nux vomica, antipyrin, sodium arsenate, sodium phosphate, eulexine, and lithium citrate, and instructed that he come to my office for observation every day. At this writing, I am glad to report a normal condition having been attained. The mental depression has passed away, the urine has assumed a normal condition in specific gravity, color, reaction and no sugar present. He attends to his business regularly, reads with a good deal of pleasure, goes into society and seemingly enjoys life; the diabetic conditions are entirely dispelled. It is not often that a case of traumatic diabetes is cured and particularly when the wound is caused by falling upon the occiput. Due allowance, however, in his case must be made for the fact that he immediately realized his condition and took steps to overcome it; in fact he had been suffering with his trouble for only thirty days prior to the time that he presented himself for treatment.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, SEPTEMBER 12, 1900.

THE PRESIDENT, CHARLES T. McCLINTOCK, M. D., IN THE CHAIR.
REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR IRWIN H. NEFF, of Pontiac, read a paper entitled "The Importance and Significance of the Reflexes." (See page 461.)

DOCTOR J. J. MARKER: From a technical standpoint, the subject of the reflexes is one of such importance that I think time devoted to its discussion will be well spent. It occurs to me that the necessity for an early diagnosis of diseases in which the reflexes figure conspicuously is very great. Take general parèsis, for instance, a disease which the doctor mentioned. In that disease among the earliest technical signs is the disturbance of the pupillary reflexes, and in most cases the exaggerated knee-jerk, the ankle clonus, and so on. A majority of these cases, or a large number of them, are among well-to-do patients, and, if an early diagnosis of this disease is made, it seems to me that if we cannot hold out much hope for a cure, we can prevent, in a measure, the patient from squandering his means by injudicious business methods. Another disease which the doctor mentioned was tabes dorsalis. In that disease the abolished or diminished reflex and the Argyl-Robertson pupil are present, and, while we cannot hold out much hope for recovery in that case either, we may be able by instituting treatment at once to retard or arrest the disease and thereby leave the patient in condition to transact business. We should all familiarize ourselves with the methods of obtaining the different reflexes and consider no examination complete until a thorough test for each one has been made.

DOCTOR H. A. WRIGHT: While wholly in accord with the sentiments expressed by the essayist, I am forced to deduce certain inferences, one of which appeals to me because, I might say perhaps, of peculiar views which I entertain in reference to mind and body, and which is called forth by a recital of the examinations which the doctor has made in certain insane cases. With reference to the peculiar presence or absence of the reflexes, it is a fact that only in so-called organic neuroses is any disturbance of the reflexes expected to be found. In so-called pure or simple insanity, with the manifest disturbances of the nervous system, it would be absurd to expect any disturbance of the reflexes, since there is no evidence of disease of the nervous system any more than there is in the perfectly healthy physical organism. The conclusions which the essayist arrived at were perfectly correct, and only direct our attention again to the fact of a careful examination. I think I shall profit by having been reminded of the care which is necessary in making these examinations. I believe physicians are in the habit of looking upon the reflexes too lightly. If the pupil retracts it is all right, and if not it is all wrong, and conclusions are jumped at without due consideration. I plead guilty of laxity myself.

DOCTOR S. BELL: I was more than ordinarily interested in the paper as it covers the ground quite exhaustively. The number of cases in which the doctor found no reflex disturbances surprises me. I had anticipated that he would have given us diagnoses of the cases which he has examined, that is, the variety in which he did not find any reflex disturbances. The classification which he gave us first I understood as that of CHURCH and PETERSON, namely, superficial and deep reflexes, I think cover all the ground that is necessary not only for the general practitioner but for the specialist also. I recently examined a case where the man seemed to be in perfect health, physically and mentally, in which the reflexes were entirely absent. I think the doctor gave two per cent. as the number in which they are absent, if I understood him correctly. This seems to me a very small percentage, and I think cases occur comparatively frequently in which they are absent. The most important changes are in regard to the radial, the serial and the knee-jerk; the others I have not found as of such great importance. The skin reflexes, as the doctor stated, are not of any great importance unless they are tested exhaustively and with considerable care. The location of the reflexes are well understood, although I do not think the doctor touched upon them in the paper. Some confine them to the medulla oblongata and the cervical region while others give them a more extended area. The paper calls to mind the necessity for a more exhaustive study of the subject and a closer observation in the examination of patients. This would reqnire considerable time, more time than we are wont to give to it generally, but the paper demonstrates the necessity for the sacrifice in order to arrive at a correct diagnosis.

DOCTOR GOUX: I am glad DOCTOR NEFF spoke of the Gabinsky reflex. This is one of the most recent reflexes, and I think it is one of the most valuable reflexes that have lately been made prominent in papers along this line. The ordinary plantar reflexes are all familiar to physicians, the flexion of the foot and the toes when irritation is applied to the sole of the foot. Describing these other reflexes, GABINSKY says if the irritation is made at the anterior part of the sole of the foot extention of the toes and particularly the great toe is observed. He says this is particularly valuable in differentiating hysterical cases from organic cases. The investigations along this line have been very recent, I believe, and I should like to ask DOCTOR NEFF to state, in closing the discussion, if there is any particular pathological significance in the hyperthenar reflexes of the hand.

DOCTOR HITCHCOCK: DOCTOR NEFF is just the man to bring this matter to our attention, particularly because he is rich in opportunities for demonstration and the large clinical material which he has at hand and by which to follow up any researches concerning any reflex or certain reflexes which at any time demand his attention or come to his clinic. I fear that physicians are prone to be superficial in making examinations, in making hasty inferences from one reflex and attaching too much importance and making hasty conclusions from a single normality of one reflex, and of other events of abnormality. I am not at all familiar with the demonstrations of GABINSKY, having only recently his reference. The members are greatly indebted to DOCTOR NEFF for his interesting paper.

Doctor Neff: I have not very much to say in conclusion. The points have all been clearly brought out in discussion. There were only two things I wish to emphasize. As I stated in my paper, the fact that an observation of these three reflexes for the general practitioner would often diagnose a nervous disease at an early stage, but that the diagnosis should not depend entirely upon the change in the reflexes; for instance, as has been brought out in the discussion, the immobile pupil. Whenever a physician sees an immobile pupil he thinks of one of two diseases, locomotor ataxia or paresis. When he finds an absent knee-jerk he thinks either of some combined cord trouble or some peripheral disease, in other words, physicians are simply testing these reflexes, and one obtains a very valuable outline and diagnosis of the nervous disease in a, perhaps, comparatively early stage. Another point has been brought out also, that is, that the reflexes should be tested in a scientific way; there should be a definite technique and this should be always adhered to. A reference to any text-book I purposely avoided. **Doctor Bell** seems to have misunderstood my paper when I said of the knee-jerk, that it is absent in less than two per cent. of cases. I only referred to the knee-jerk, but there is no reason to believe that the reflex is altered in insanity. I make this statement from personal observation and from the observation of others. As regards Doctor Goux's hyperthenar reflex, I have had no practical experience with it. I have read something of it. I believe that the conclusion is that it has the same valuation as an ordinary skin reflex. In other words, it should be considered with the superficial or skin reflexes.

STATED MEETING, SEPTEMBER 19, 1900.

The President, CHARLES T. McCLINTOCK, M. D., in the Chair.
Reported by LOUIS J. GOUX, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Stanley G. Miner read a paper entitled "The Etiology and Treatment of Purulent Pleurisy." (See page 468.)

Doctor Willis Anderson: Our ideas of the etiology of pleurisy have changed in the last ten or fifteen years. It is now looked upon purely as an infectious disease, the old idea that it was due to catching cold having given way to the idea that it is of germ origin. While the naturally important cause is always the organism, still there exist accompanying causes of more or less importance. Empyema is, usually, a secondary cause, and follows sometimes abscesses or diseases of the skin or ribs, or, the disease may be due to tuberculosis, or lobar pneumonia, but this is almost always secondary to some other infection and is not usually a primary condition. It may also originate from sources quite remote from the chest as, for instance, when, through the lymphatics, infection has originated from glands in the neck, or even from ear diseases, or it may originate from accompanying diseases in the abdominal cavity, and in each of these cases the microorganism is the important and determining factor. As to treatment, probably the question most discussed now is whether or not irrigation is advisable. **Reinberg**, from

1876 to 1883, used irrigation, and he reports the cure of thirty per cent. of his cases with a convalescence of one hundred and one days; from 1883 to 1885 he simply used a single irrigation as a plan of operation, and he reports seventy cures with a duration of eighty-four days, as compared with thirty per cent. of cures in one hundred and one days; from 1885 to 1890 he used absolutely no irrigation, and of the uncomplicated cases ninty-six and five-tenths per cent. recovered in forty-eight days. This report, of course, is the experience of one man, but the experience of so many others have been so similar that now it has come to be the rule not to irrigate. It is, perhaps, peculiar, but none the less a fact that one ought to hesitate before operating upon cases of empyema accompanied by pulmonary tuberculosis. The practical fact is that many times cases of tuberculosis of the lungs do fully as well if not operated upon. It seems as if the evacuation of pus from the pleural cavities excited the tubercular processes to greater activity, and some go so far as to say that except in unusual cases no operation should be done, and if anything is done a simple aspiration probably gives as good results as any other procedure, as the thorough drainage in these cases very often shortens life, that is, in tubercular cases.

DOCTOR MCVEIGH: I do not think that resection of the rib is necessary where there is plenty of room to do the simple thoracotomy. I would like to ask DOCTOR MINER if, in making the incision, he selects any particular rib or whether he does not find it better to go to the last bone to make the incision to get the benefit of gravity?

DOCTOR TIBBALS: The doctor made the statement in reference to the etiology that the treatment, should be largely outlined by the bacteriologic classification. It occurred to me that in many cases this would be difficult to do. The diagnosis between different forms of bacteriologic infection in the pleura might be based entirely on the history. If you have a clear history of pneumonia preceding, the diagnosis is established; if it is a case of pneumococcic infection, you might have also the streptococcic infection, therefore, in criticising that part of the essayist's paper it would be my opinion that the surgeon would be obliged to decide the question of operation largely by the clinical symptoms rather than by the bacteriologic etiology of the case. The incision with resection seems to me, surgically, preferable in the majority of adult cases because it enables expulsion of the pleura and better drainage can be obtained than is ordinarily guaranteed by incision, the abscess being treated as an abscess would be treated anywhere else, according to the principles of general surgery. I, myself, do not see any objection to irrigation. If drainage is complete, if the abscess pocket is emptying itself with drainage tube or drainage gauze, irrigation is probably unnecessary after, possibly, the first dressing.

DOCTOR WARREN: There is one statement that the doctor made that an experience I had last winter would, I think, refute to a certain extent, and that was about the incurability of the streptococcic infection. I had a case, a man about thirty-three years of age, in which I aspirated to find out what was the matter. He had a pleurisy and it had been diagnosed by two others and myself as a simple pleurisy with, possibly, some effusion. We were in doubt whether it was purulent or not, but we knew there was effusion.

The fluid removed was a pure culture of the streptococcus as shown in two tests. The whole fluid that I obtained from the cavity, and I only removed perhaps from two to two and one-half drachms of it, contained nothing but streptococci. I expected within a few days to have to make a partial resection, but, as a matter of agreeable disappointment to the patient and his friends, he began to get well right after the aspiration of those streptococci germs, and three months afterwards I examined him and, while there were some signs of adhesion left, the man was well. There was a rise in temperature all through his sickness, but after three months all physical signs disappeared and he was perfectly well and had full expansion on that side of the chest.

Doctor Miner: How extensive was the empyema?

Doctor Warren: I do not remember exactly; it extended up to somewhere between the fourth and fifth rib; not very well forward.

Doctor Miner: Why did you not operate in two or three days?

Doctor Warren: He kept getting better all the while.

Doctor Tibbals: Where did the infection come from in this case?

Doctor Warren: He had a debauch and acute gastritis and, I presume, he had a slight local pneumonia. He had been sick about ten days. There must have been a mixed infection at first.

Doctor Hartz: From my learning about this subject I recall that Kuester, of Berlin, recommended opening at the twelfth rib, making the opening posteriorly and also anteriorly. Of course, it is a surgical feat to do that, but there are dozens of patients cured much more rapidly than when it is made higher up. The advantage is that when you make an opening down low the patient does not need to lie down to get drainage; as he walks the pus naturally escapes. I think it is extremely practical to resort to operation at once when we have empyema, whether it is streptococcic, or pneumococcic, or tuberculous. I think surgeons today ought to practice on consumptives with a view to perfecting the system of operation so as to get at these cavities. It is difficult to tell where the cavities are. In regard to chloroform or ether, if patient has an empyema on one side it would be imprudent, of course, to empty a good part of it, because if the voluntary muscles are assisting in respiration, patient might expire.

Doctor F. B. Walker: I must say that I do not see any objection to carefully washing out an abscess of the pleural cavity any more than a collection of pus in other parts of the body. One other point of importance concerns the dressing of these cases after operation. I was dressing a patient of this kind, a little girl. After the wound had been thoroughly cleaned I had inserted the tube, but while I turned around to get a safety pin, it disappeared in the cavity. You can imagine the situation. It required anesthesia and some little trouble with curved forceps to get hold of it again. I speak of this as I know others have been mortified in a similar manner.

Doctor Robbins: Some time or other I must have read an article written by some enthusiast, because it impressed my mind quite strongly that a very large proportion of these cases were found in tuberculous patients, and I have carried it there for several years, probably as an entirely false conception regarding the tuberculous tendency of the large proportion of these purulent cases, and I am glad to have that eradicated from my mind tonight. As far as my experience is concerned, which of course is not great, the simple thoracotomy has been almost always sufficient. Drainage has taken place and cures have rapidly followed operation without removal of the ribs in nearly every case. Something has been said in the discussion about washing out cavities. It seems to me that purulent cavities are washed out altogether too much. Not to say that it is an injury very often to thoroughly douche and irrigate the pus cavity, but I doubt whether a pus cavity is helped very much by irrigation, because you may by irrigating carry out quite a good many fibre purulent masses; but if there is a large proportion of deposits of purulent fibre on the wall of the pus cavity, wherever it may be, the irrigation does not take them away, but by the natural process of repair the granulations take place on the healthy surface and throw off these fibre purulent masses, and after a while, a perfectly healthy surface is the result. DOCTOR TIBBALS, especially, spoke about that in referring to the irrigation of purulent cavities generally. I do not know as it does any harm, but do not think it does any particular amount of good.

DOCTOR L. J. HIRSCHMAN: There is just one point that occurred to me which, perhaps, has bothered some of the members present. It bothered me for quite a while. I found that the drainage tube gets clogged up with the matter and will sometimes not drain at all. I used to dress the wound two or three times a day and clean out the clogs, and the next day would find another clog, and thought perhaps it was due to the pin being put too near the middle of the tube, but still it clogged up, and so, after trying different methods I discovered that by dipping a probe in carbolized vaseline and thoroughly probing inside the tube I was not troubled any more by clogging.

DOCTOR CHAPOTON: I know that public consensus is against me and that the leading authorities, as far as books are concerned, say not to irrigate empyemas or empyemic cavities. I do not know that I have had any better results than anybody else by douching them out, but it always seemed very appropriate to sweeten that cavity by the use of some antiseptic wash. I know BOWDITCH, in a report of several hundred cases, operations upon empyemas, did not wash once, simply drained, and patients derived benefit, so that it is simply in those cases where there is some odor of pus that I have generally washed the cavity out. One of the gentlemen spoke in regard to the point of resection of the rib. I think that every one must determine that point for himself for there is no necessity for a fixed rule of resecting a rib every time you open a purulent cavity of the chest. If you can introduce two pieces of fair-sized drainage tube so that drainage is not impeded at all, I do not think there is any necessity for resecting a rib. So it has turned out anyway in every case that I have failed to resect. In elderly persons in whom the ribs are already closing and commencing to come down pretty close to each other, where there is not sufficient space between, it is always necessary to resect by operation one rib. In regard to the infection of tuberculosis following purulent pleurisy, the statement has been made in a very broad way that the vast majority of these cases were followed by general tuberculosis or pulmonary tuberculosis. As far as personal experience is concerned, my custom has been decidedly to the contrary. I have seen very few instances indeed in the twenty-six years or so of practice, where tuberculosis followed, and I think that where there is a coincidence of pulmonary tuberculosis, and years after the individual had had pleurisy, the coincidence of the secondary disease might well be accounted for in this way. I do not know whether it has been mentioned by others this evening, but certainly after a person has had, even serous pleurisy, I do not think that the lungs or the pleura ever return to their normal condition; there are defects existing here and there. We have a restriction at these points and besides an impairment of motion; there are places of less resistance and, consequently, afterwards if the individual is exposed to tubercular infection he is not as well able to resist.

Doctor Miner: In regard to the question of Doctor McVeigh, the reason I think that the site along about the fifth or sixth or seventh rib is usually selected is because of the ascent of the diaphragm after an operation. If you notice your drainage tube you all know that in empyemas the pus is very heavy. It forces down the diaphragm before we have evacuated it. If you make a rib resection or even a simple aspiration with siphon, within a week or ten days the ribs will come very much closer together from the retraction of the chest wall due to the nonexpansion of the lungs. I have seen several cases of that kind where, after an opening was made, another operation was required on account of it being entirely impossible to drain out the pleural sac, the tube becoming obstructed and the diaphragm forcing the tube up against the wall of the chest and preventing the pus from escaping, owing to the sharp bend produced in the tube just where it enters the pleural sac. Another reason why the posterior site of the chest is not selected is that during the operation it is not advisable, if you give the general anesthetic, to have the patient on that side or have him turned over. It is better to keep the patient as much on his back as possible, and in making a rib resection on the posterior surface of the chest it is necessary to turn your patient over on his side. There have been quite a number of deaths that have followed changing the position of the patient during the administration of the anesthetic. In regard to making two openings, the statistics show that the results have not equalled those of other operations. Even then, I think Kuester, who abandoned that method of operating four or five years ago, did not make the two openings at the same time but one afterwards, and it was in those cases in which there seemed to be pockets in the pleura which would have to be broken up. Instead of making a multiple rib resection he would make two openings and pass the tube from one to the other, I think more for irrigation than for drainage at the time, thinking that he could irrigate and not run any risk of pressing upon the heart or interfering with the action of the heart, or pressing upon the large vessels after having the pleural sac so the fluid was forced into the sac and could be immediately released by passing through the other opening. If you have in your drainage tube a sharp curve at its entrance into the pleural sac you are apt to get poor drainage and require another operation three or four weeks after the first. We must always be guided by the results; it is the results that should certainly guide us in our future method of operating. The results mean, how soon is your patient to get better, and in what condition is your patient after he is better. It does not mean simply an infection of the pleura. There is more or less pulmonary involvement. It may not be more than one-fourth or one-third or one-half. The next factor is how soon will your wound close? How little retraction of that side of the chest will you get? That will depend upon the length of time that drainage must be continued. Now, we know without statistics that the closure of the opening comes earlier, and from two to three weeks in some cases earlier, than when irrigation is resorted to. I do not know why, whether irrigation washes away the cells that have been forming there—the new tissue that has been forming—but all we know is that in a majority of these cases when irrigation has not been employed that a closure of the wound is secured sooner, the discharge ceases earlier, than when irrigation has to be pursued, except in the putrid variety. In regard to the aspiration of mixed infections recommended by DOCTOR WARREN, he can certainly be congratulated. They seldom get well by simple aspiration, and I think the doctor will quite agree with me that the results in that case are certainly much better than can usually be expected, because I do not think outside of the pneumococcic variety of the empyema of children that we can depend upon the simple aspiration. It is not safe. In regard to the use of iodoform, there is very little objection to using a great deal of iodoform in these cases. These patients are so confined to the house or hospital—not going out on the street cars—that their lady friends will probably not be very much annoyed.

EDITORIAL ARTICLES.

THE REORGANIZATION OF THE MEDICAL PROFESSION IN DETROIT.

DURING the last four months the medical atmosphere in Detroit has been considerably agitated by two movements, one of which has been interesting on account of its having been attempted in other localities, while the other has for several reasons given Detroit physicians some undesirable notoriety. The Physician and Surgeon has heretofore simply announced their inception without any pertinent remarks, while the local secular papers and neighboring medical journals have repeatedly noted and in some instances misrepresented them. As a constant spectator and interested participant it seems desirable that these columns should at this stage give out the facts.

Like nearly all the larger cities Detroit has had what seemed to many a superfluity of medical societies. Rivalry existed to an extent and yet, as it seemed, a division of the voluntary efforts and resources militated against rather than stimulated to the achievement of the greatest good. Amalgamation of the existing societies having already been found impracticable, the forming of a new society of members from all was ventured as a compromise measure. Such was the origin of the Detroit Medical Society. The new organization as a means of reconciling and unifying the local fraternity was almost eagerly received by more than a majority of the physicians and, to show the good faith of its members, the Detroit Medical and Library Association, after a successful career of nearly a score of years, disbanded in the interests of cooperation. The members of the Detroit Academy of Medicine, which boasts of being the oldest living medical organization in the city, have almost without exception also accepted the new society, although the continuance of their own organization, with its limitation as to membership, is neither unwise nor inconsistent. Notwithstanding that many of the members of the Wayne County Medical Society, which curiously is the third organization under that name, desires to end the factional disunion of the local profession, others have preferences which will make the result a matter of interest to the student of human nature.

The other movement attempted purposes to enhance the material welfare of the profession. It proposes a close union of all active practitioners, through which collective action may be brought against certain abuses that are now imposed upon physicians and in favor of measures designed to benefit them and the public as well. The former have reference to the nonpayment of legitimate fees, the suppression of fraudulent medical practice in all its forms, and the regulation of public charities, while the latter would provide for a more systematic collection of physicians' accounts, for advisable amendatory legislation, and for improved public sanitation. It is proposed also to establish an official fee bill (containing minimum and maximum charges), to provide a gratuity fund for the relatives of deceased members, and to raise a fund for the erection of a medical building. For the success of the organization as recommended the support of all or nearly all resident practitioners is necessary, and to gain this support coercive influence has been advised. The plan has been seriously discussed throughout the city. Several wards have been personally canvassed and the assent of the majority residing in them reported, but, although general meetings of the whole profession have been called, few have shown sufficient interest to attend and a central organization has not thus far been effected.

Four months have now elapsed since these movements were started. One has reference to scientific advancement and incidentally unity in the regular profession. It has prospered beyond all expectation. Whether or no the amalgamation of the medical societies shall ultimately result there has already been a decided increase in the general interest manifested in them and in their scientific aims. The other movement also proposes union but particularly for business interests. It has met decided opposition and even now has a precarious existence. The contrast is marked, and while the comparison reflects the noblest professional traits a false impression would be thrown out were not some explanation made. About six or seven years ago a physicians' collective association was formed, and named the Detroit Physicians' Protective Association. All regular and homeopathic active practitioners were eligible to membership. Being an innovation its management has been more or less empirical. Mistakes have, however, given it strength although its membership is small. From motives, presumably like those to which the origin of the Detroit Medical Society was due the new business association was started. Curiously enough and with apparent inconsistency certain individuals, who oppose the union of the societies of regular physicians, have been the most earnest promoters of the enterprise to relegate the Protective Association out of existence and put in its place a hydra-headed scheme, with such radical measures as to drive from their support some of those who originally suggested the undertaking. In thus characterizing the plan proposed there is no intended insinuation that its objects are unworthy. On the contrary it must be admitted that the movement is in the right direction and timely. There is beginning to be felt in many sections of the country a need for organized action in the interest of the material welfare of physicians. The movement is, however, in many respects an innovation and should be promoted with some regard to public sentiment as well as to the self-respect of a thinking being of the professional class. Whatever else may be contemplated it will necessarily be an organization with voluntary membership. Ward government is a capital idea but professional practice may be city wide. An approximate result is all that may reasonably be expected and that only by the display of these qualities that attract. Let the organization be more single in its aim, more tactful in its methods, and it will be more successful in its net results and general educational influence.

ANNOTATIONS.

THE PELVIC BINDER.

Like many another article the pelvic binder has been subjected to faddism. Once regarded as an essential part of midwifery technique it suddenly became a superfluity and then it was said to push the uterus up beneath the diaphragm and cause all sorts of trouble. Conservatism has, however, brought it again into use and with it the perineal band. When properly applied it holds in proper position the visceral and pelvic contents, assisting in the repair of lacerated tissues, in the involution of the uterus, the prevention of congestion, and not only gives comfort to the woman, but preserves her figure. The diligent accoucheur would now provide for several such binders for use during the first two weeks of the puerperium when they may be replaced by the usual abdominal binder.

THE REMOVAL OF OVARIES AND FALLOPIAN TUBES.

The ultimate results after partial or complete removal of the ovaries and Fallopian tubes continue to be an interesting and even more fruitful subject for research as time extends the period of observation. It has not been an easy matter to determine the exact results of these operations in many cases on account of the difficulty of tracing them for a sufficiently long time. It may be stated, however, that the Battey operation has well nigh fallen into merited disuse and, as Clark has observed, there has been an increasing tendency toward conservatism, with the result of limiting radical operations. It has been found practicable to leave at least part of the ovarian stroma since the menstrual symptoms have been found on the whole less troublesome than the climacteric. It is quite likely that this view will meet the approval of the general practitioner into whose care most of these cases finally come.

THE HYGIENIC VALUE OF BACTERIOLOGIC STUDIES.

He whose impressions have depended solely upon his own observations could scarcely appreciate the results that have come from bacteriologic studies. Not to mention the specific remedies that we now possess, the treatment of nearly all transmissible diseases has become much more effective through an enlightened knowledge of their causes and pathologic processes. But more than this, through the application of bacteriologic methods to the investigation of these diseases we have learned much of the sources and means of their communication and of the avenues of bodily infection. As a result of this knowledge the almost absolute control of some diseases has become possible. The establishment of drainage and pure water supply checked the death rate from typhoid fever in Munich about ninety-six per cent. Similarly a reduction of about sixty per cent. in the death rate from typhoid fever resulted in one district in Chicago from improved water supply. Such illustrations are numerous. Bubonic plague, the pestilence of history, has existed for years along the route of our commercial intercourse, and yet its spread has been prevented, and that without any considerable alarm, solely because of public confidence in hygienic precautions. In like manner the epidemic and endemic presence of diphtheria, scarlet fever, smallpox, yellow fever, and other communicable diseases have been limited and wiped out by rigid sanitary measures—the outcome of bacteriologic studies.

MEDICAL NEWS.

SOCIETY ATTRACTIONS.

The Wayne County Medical Society has issued the following program for November: (1) "Euthanasia," Doctor Noah E. Aronstam and Mr. Louis S. Rosenberg. (8) "Gangrene," Doctor Kenneth Gunsolus. (15) "Medical Economics," Doctor Hiram A. Wright. (22) "Circumcision and Its Relation to Reflex Disturbances," Doctor Charles A. Dutton.

* * *

The Detroit Medical Society has announced the following program for November: (7) "The Pathology and the Antiseptic Treatment of Smallpox," Doctor Alonzo Bryan; "My Recent Experience with Smallpox," Doctor Theodore Schmalzriedt, of Woodmere, Michigan. (14) "Intestinal Suture—All Knots Inside," paper and demonstration at Saint Mary's Hospital, Doctor F. Gregory Connell, of Chicago; "An Intestinal Holder—A New Device which Facilitates the End-to-End Approximation of the Intestine by Means of Any

Suture," paper and demonstration at Saint Mary's Hospital, Doctor Edward H. Lee, of Chicago. (21) "Thermotaxis," Doctor Augustus W. Ives; "Some Observations upon Normal Temperatures in Children—A Series of Experiments," Doctor William M. Donald. (28) "The Diagnosis and Treatment of Intestinal Obstruction," Doctor Theodore A. McGraw.

THE ASHEVILLE MEETING.

THE twenty-sixth annual meeting of the Mississippi Valley Medical Association convened at the Battery Park Hotel, in Asheville, North Carolina, October 9, under the presidency of Doctor Harold N. Moyer, of Chicago, and continued its sessions daily until adjournment on the 11th. In his address the president considered matters of general interest to the profession, medical societies, medical legislation, and specialism, receiving particular mention. . . . Medical societies are more numerous in America than in any other quarter of the globe, and there cannot be too many of them. . . . Contrary to the belief of some lawmakers, physicians have no desire to legislate a fence around the practice of medicine for their personal aggrandizement. . . . The overweening inclination of the profession toward specialism is a matter for criticism. A physician should spend several years in general practice before adopting a specialty, and even then the selection should not be forced, but, like matrimony, should come naturally. . . . A goodly number of papers were read and discussed. Michigan was represented on the program by Doctor H. O. Walker, who read a paper entitled "Abdominal versus Vaginal Hysterectomy", which will be published in the next issue of The Physician and Surgeon. The Buncomb County Medical Society tendered the visiting physicians a banquet at the close of the meeting. Put-in-Bay, Ohio, was selected as the place at which the next meeting will be held, the date being September 10, 11, and 12, 1901. Doctor J. C. Culbertson of Cincinnati, is chairman of committee of arrangements. The following officers were elected for the ensuing year: President, Doctor A. H. Cordier, of Kansas City, Missouri; first vicepresident, Doctor C. F. McGahan, of Aiken, South Carolina; second vicepresident, Doctor C. L. Minor, of Asheville, North Carolina; secretary, Doctor H. E. Tuley, of Louisville, Kentucky (reelected); treasurer, Doctor D. S. Reynolds, of Louisville, Kentucky (reelected).

MORE ILLUSTRIOUS DEAD.

DOCTOR ALFRED STILLÉ, of Philadelphia, died of bronchitis in that city September 24, in the eighty-seventh year of his age, having been born in Philadelphia in 1813. He received his literary and medical education at the University of Pennsylvania, graduating as an A. B. in 1832, and as an M. D. in 1836. His professional career was inaugurated at the Philadelphia Hospital, where he occupied the position of resident physician one year. He then visited Europe and spent two years pursuing postgraduate study in Paris and other clinical centres. On returning home in 1839 he was appointed resident physician in the Pennsylvania Hospital. From 1840 to 1877 he was visiting physician to Saint Joseph's Hospital, and during the Civil War was one of the visiting physicians to the United States Satterlee Hospital, later (1865) becoming one of the physicians to the Philadelphia Hospital. In 1844 he became lecturer on general pathology and the practice of medicine before the Pennsylvania Association for Medical Instruction, a position he occupied until 1850. From 1854 to 1859 he was professor of the theory and practice of medicine in the Pennsylvania Medical College. He was elected to a similar position in the University of Pennsylvania in 1864, and when he resigned the incumbency of the chair, twenty years afterward, was made emeritus professor. While his career as a teacher was eminently successful he achieved greater renown as a writer. He was the author of a work on "Materia Medica and Therapeutics," and another on "Elements of General Pathology," besides being coeditor of the "National Dispensatory," and cotranslator of Andral's "Pathological Hematology." In addition to this galaxy he was the author of numerous monographs and papers, a very important production of this class being his study of cerebro-spinal meningitis. He was instrumental in founding the American Medical Association, and officiated as one of its first secretaries, subsequently being elected to the presidency, in which charge he swung the gavel at the San Francisco meeting in 1871. He was an ardent advocate of higher medical education, and published a brochure on the subject in 1845. Doctor Stillé was married twice, the second nuptial knot having been tied in June of last year. A son is practicing medicine at San Antonio, Texas. The will of deceased bequeaths to the College of Physicians of Philadelphia, all his medical books not duplicated in its library, together with manuscripts, indexes, current medical journals, certain pictures, et cetera. The Stillé Medical Society of the University of Pennsylvania receives all photographs of the society possessed by him. The professional career of Doctor Stillé is indelibly impressed upon the medical history of America. He reached the goal of glory.

* * *

Doctor Lewis Albert Sayre, of New York City, whose fame as an orthopedic surgeon is world-wide, died at his Fifth avenue home September 21, aged eighty years. He was born in Battle Hill, now Madison, New Jersey, February 29, 1820, and although blessed by a longevity of fourscore years it was his privilege to celebrate only nineteen birthdays. His scholastic education was obtained in Battle Hill and Deckertown, New Jersey, and his collegiate training was received at Transylvania University, Lexington, Kentucky, and the College of Physicians and Surgeons, New York City, the degree of A. B. being conferred on him by the former institution in 1839, and that of M. D. by the latter in 1842. After graduating in medicine he was appointed prosector of anatomy in the College of Physicians and Surgeons, a position which he admirably filled under Doctor Willard Parker for ten years. In 1844 he was commissioned as surgeon in the State militia and wore the stripes of the rank until 1866. In 1853 he was appointed surgeon to Bellevue Hospital, and in 1859 received a similar appointment in Charity Hospital on Blackwell's Island, and had remained a consulting surgeon to both these institutions since 1873, as well as to Saint Elizabeth's Hospital and to the

Home for Incurables. In 1860 he was appointed health officer of New York, and held the position during three succeeding mayoralty terms. In 1861 he figured as one of the founders of the Bellevue Hospital Medical College and was installed in the chair of orthopedic surgery, fractures, and luxations in its first faculty, a professorship which he filled, with slight change in title, until 1898, when the union of the college and the New York University was effected, after which he became emeritus professor of orthopedic surgery in the consolidated institution. Doctor Sayre was the first American to successfully perform exsection of the hip for morbus coxarius, 1854 being the year of the operation. He subsequently demonstrated the procedure before medical gatherings in this country and in England, as well as the utility of suspension and the application of the plaster jacket in the treatment of Pott's disease of the spine, besides lecturing on the treatment of hip-joint and spinal disease before a number of medical societies on the Continent. The doctor was one of the founders of the New York Academy of Medicine, the New York Pathological Society, and the American Medical Association. In 1866 he was elected vicepresident of the latter organization and in 1880 was elevated to its presidential chair. He was a renowned lecturer on orthopedic surgery and a fruitful contributor to medical literature. In recognition of his writings on surgical subjects the British Medical Association, the Medico-Chirurgical Society of Edinburgh, the Surgical Society of Saint Petersburg, and the Medical Society of Norway elected him to honorary membership. In recognition of his surgical skill Charles IV, of Sweden, decorated him with knighthood of the Order of Wasa for attending a member of the royal family. Death came to the doctor devoid of pain. His health had been on a declined plane for some time but his mental faculties retained their clearness until life ebbed away. Doctor Sayre was a mechanical genius and many standard orthopedic appliances are the result of his inventive bent. He enjoyed the reputation of being one of the foremost surgeons of his time.

RECENT PUBLICATIONS.

REVIEWS.

A MANUAL OF OTOLOGY.*

We look upon this work as "the biggest little" book extant upon this subject. A new edition, second. within two years from the publication of the first edition, speaks volumes in favor of the book. The addition of considerable new matter and several new plates is a desirable improvement upon the first edition. The plate containing nine colored figures of the drum membrane is a pleasing and helpful addition, though the pictures are rather highly covered. The plate showing the pneumatic cells and tympanic cavity is too indistinct to be of much value, but this is possibly the fault of the printer. The book is nicely gotten up and well printed. A copy of it should be in the library of every physician and student. E. S.

*By Gordon Bacon, A. B., M. D. Lea Brothers & Company, New York and Philadelphia.

DISEASES OF THE EYE.*

We look with disfavor upon all "Quiz-Compends," as students are too apt to use them instead of text-books. They are necessarily incomplete and at best mere makeshifts. This is a quiz-compend without the *quiz*, and is one of the best of its kind. The illustrations are good and so is the work of the publishers. E. S.

* By George M. Gould, A. M., M. D., and Walter L. Pyle, A. M., M. D. P. Blakistone's Son & Company, Philadelphia.

REFRACTION.*

The fact that this is a tenth edition speaks volumes in favor of the book. It is a safe guide to the student, and the concise method of dealing with the various phases of refraction makes pleasant reading. It is pleasing to note that American ophthalmology is duly recognized. The author quotes Doctor Jackson, of Denver, quite in extenso regarding retinoscopy. The book is nicely printed, attractive in style, and up to date. E. S.

* The Refraction of the Eye. A Manual for Students. By Gustavus Hartridge, F. R. C. S., Senior Surgeon to the Royal Westminster Ophthalmic Hospital. Tenth edition. 1900. Illustrated. 12mo. P. Blakiston's Son & Company, 1012 Walnut street, Philadelphia, Pennsylvania. Price, $1.50 net.

DIABETES MELLITUS AND GLYCOSURIA.*

The contents of this volume are: Definition and History; Geographic Distribution and Etiology; Glycosurias; Symptoms and Complications of Mild and Severe Diabetes; Diabetes Infantilis; Diabetes Mellitus Following Extirpation of the Pancreas; Metabolism and Nutritive Needs; Investigation of a Case of Diabetes; Treatment; Table of the Commonest Kinds of Food in Percentages of Proteid, Fat and Carbohydrate; Personal Register; Index. The author intimates having had the advantage of the observation of very many cases of diabetes and yet his work is very largely a compiling from other authors, whom he wisely and honorably quotes. The article on geographic distribution is interesting and deserves notice. In discussing upon infantile diabetes three of the seven pages are curiously taken up with the history of cases nine, fourteen and nineteen years of age. The reference to Carlsbad as a favorable resort for diabetics is very fair indeed, there being no tinge of prejudice. The author is less vigorous in the matter of diet than some writers but on the whole he has given a good resume of the subject.

*By Emil Kleen, Ph. D., M. D. Octavo; 313 pages. Price, cloth, net, $2.50. P. Blakiston's Son & Company, Philadelphia.

INJURIES OF THE EYE IN THEIR MEDICO-LEGAL ASPECT.*

THE medico-legal aspect of injuries to the eye and its adnexæ is of great interest to all ophthalmologists and most surgeons, and we offer to this small work a most kindly greeting. S. Baudry has given us a work of much interest and value, and the translators have placed the profession of America under obligations to them for presenting the book to them in a form adapted to this country. Expert testimony is an interesting subject, as is also the query "Who is a medical expert?" Our somewhat lax laws on these subjects should be modified and the rule adopted by our courts that "a physician is not competent to testify as an expert concerning matters pertaining to a special branch of his profession unless he has devoted himself particularly to such branch. He is not an expert in a subject of his profession entirely out of the lines of his usual practice and study." The book can be recommended to the entire profession. E. S.

* By S. Baudry, M. D., Professor in the Faculty of Medicine, University of Lille, France, et cetera. Translated from the original by Alfred James Ostheimer, Jr., M. D., of Philadelphia, Pennsylvania. Revised and edited by Charles A. Oliver, A. M., M. D., Attending Surgeon to the Wills Eye Hospital; Ophthalmic Surgeon to the Philadelphia Hospital; Member of the American and French Ophthalmological Societies, et cetera. With an adaptation of the Medico-Legal Chapter to the Courts of the United States of America, by Charles Sinkler, Esquire, Member of the Philadelphia Bar. 5⅝ x 7⅞ inches. Pages, x–161. Extra cloth, $1.00 net. The F. A. Davis Company, Publishers, 1914–16 Cherry street, Philadelphia, Pennsylvania.

MANUEL COMPLET DE GYNÉCOLOGIE MÉDICALE ET CHIRURGICALE.*

THIS work occupies a place between the exhaustive treatise and the ordinary manual. It will be of greatest interest to American readers by way of comparison of our own with French methods. To judge by the illustrations, which are both very numerous and excellent, they use more instruments than do we. Notwithstanding the prejudicial standing of the vaginal procedures the author has not devoted undue attention to them. The subject of artificial fecundation has been seriously introduced and the text has this to say: "To sum up, artificial fecundation constitutes a practical and inoffensive means of remedying certain varieties of sterility, and there is every reason to hope that it will rapidly take the place which it deserves in practical gynecology." "Let us add that operative procedures will render this operation perfectly compatible with the dignity of the doctor and the woman's modesty." This is not the first time this opinion has been held. Experiments are mentioned dating back to 1767 and, Sims is stated to have practiced it with success in 1866. We do not remember, however, to have seen the subject mentioned favorably in English text-books.

*By A. Lutaud, Professor of Gynecology; Physician to the Saint Lazore; Member of the Obstetrical and Gynecological Society of Paris, et cetera. A. Maloine, editor, Paris, 1900.

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ORIGINAL CONTRIBUTIONS.

MEMOIRS.

THE DIETETIC TREATMENT OF DIABETES.*

By VICTOR C. VAUGHAN, Ph. D., Sc. D., M. D., Ann Arbor, Michigan.
PROFESSOR OF HYGIENE AND PHYSIOLOGICAL CHEMISTRY, DIRECTOR OF THE HYGIENIC LABORATORY, AND DEAN OF THE DEPARTMENT OF MEDICINE AND SURGERY IN THE UNIVERSITY OF MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I desire to thank you for the courtesy of your invitation to read a paper at this meeting. In complying with this request, I have selected the dietetic treatment of diabetes mellitus for my subject. I will endeavor to make my remarks practical, and will be as brief and concise as I can without a sacrifice of clearness of statement.

I offer the following definition of this disease: Diabetes mellitus is a name used to designate the fact that the body has lost more or less permanently its function of normally metabolizing carbohydrates.

According to this definition, diabetes and glycosuria are by no means synonymous. It is now generally conceded by physiological chemists that the urine in health contains traces of sugar and it is also well known that larger and easily detectable quantities of this substance are found temporarily in this excretion in consequence of various causes. The capability of the animal body in the utilization of carbohydrates is limited and the limit is largely dependant upon the kind of carbohydrate. A healthy working adult thrives best when his daily ration contains about eighteen or twenty ounces of carbohydrate, but he may, for a while at least, dispose of two or three times this amount when taken in bread and potatoes. In fact it is not probable that a healthy man can eat enough starch to cause sugar to appear in his urine, but with the less complex carbohydrates, the facts are quite otherwise and man can easily induce a temporary glycosuria by eating an excess of sugar. However, my observation leads me to the belief that this form of glycosuria does not occur very often. Many years ago it became quite a fad among the students at work in my laboratory to test their individual capacities for disposing of sugar. I did not consider this experiment as free from the possibility of harm, if frequently repeated, and consequently discouraged this line of original investigation, Sugar in the urine may also result from the administration of certain drugs. These temporary glycosurias are not to be confounded with diabetes.

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*Read before the Detroit Medical and Library Association at its annual meeting, October 1, 1900.

I wish to say a few words concerning the clinical tests for sugar in the urine. Of course, I now refer to the detection of pathological quantities of this substance. In a well developed case of diabetes there can be no question about the diagnosis. The large volume of urine, its high specific gravity, the easily detectable quantities of sugar, the great thirst, and marked emaciation, are all so plainly evident that it requires but little professional skill to make a positive diagnosis, but fortunately all cases of this disease are not so advanced and distinctly marked when first seen by the physician. The volume of urine may be but slightly, if at all, increased over the normal. The specific gravity may be even lower than the normal average. Thirst and emaciation may not be marked. In short, in many cases the diagnosis must depend solely upon the detection of relatively small quantities of sugar in the urine. For this reason the tests for this substance become of the greatest importance. A considerable per cent. of the cases sent to me within the past ten years with a diagnosis of diabetes have proved not to have this disease at all. In a few of these cases the diagnoses have been made solely on the high specific gravity, but generally the diagnostic errors have resulted from the untrustworthy reduction tests.

Practically I employ four tests for sugar in the urine in my diagnostic work. These are the following:

(*1*) *Trommer's test with Fehling's solution.*—I keep the alkali and the copper solutions of Fehling's reagent in separate bottles in order that the reagent may not deteriorate. When the test is to be made these solutions are mixed in equal volumes. The results of the test with this reagent may be as follows: (a) If there is no reduction, sugar is probably absent, but Nylander's test may be used as confirmatory. (b) If the reduction is slight and tardy in appearing the presence of sugar is left undetermined and other tests must be employed, (c) Only when the reduction is prompt and complete can the presence of sugar be predicated.

(*2*) *Nylander's reagent.*—This reagent is prepared by dissolving forty grains of Rochelle salts in one liter of a ten per cent. solution of caustic soda, then adding twenty grains of bismuth subnitrate, warming and filtering. This reagent does not deteriorate. When boiled for two minutes or longer with diabetic urine a brown or black precipitate of reduced bismuth forms. It is a more delicate test than the one with the copper solution, and I use it in all cases in which the result with Fehling's reagent is negative. If the urine gives negative results with both of these reagents, the absence of sugar in that specimen can be positively asserted. On the other hand if both of these are positive but not marked, further information must be obtained before the evidence can be considered sufficient to be conclusive.

(*3*) *Fermentation test.*—In cases in which either or both of the preceding reagents have given positive, but not prompt and convincing, testimony, I always turn to the fermentation test. This should invariably be made in duplicate, that is, with the suspected urine in one tube and a normal urine in another, and with the same amount of the same yeast in each tube. The better brands of compressed yeast give satisfactory results, when the test is made in duplicate, but many of them contain traces of sugar and a small volume of gas will frequently be found in the control tube.

(*4*) *The Phenylhydrazin test.*—While I am seldom in doubt after making the three preceding tests, I frequently seek confirmatory evidence in the phenylhydrazin test. Of the various modifications of this test I think that of WILLIAMSON the most satisfactory. This is made as follows: Phenylhydrazin in powder is placed in an ordinary test-tube to the depth of about half an inch, then an equal volume of acetate of soda in crystal or powder is added; next the tube is half filled with the urine under examination and the mixture boiled for two or three minutes. After this, the tube is allowed to stand at warm temperature for half an hour or longer. If dextrose be present needle-shaped yellow crystals, generally arranged in tufts, bundles or rosettes, will be found deposited in the tube. In the absence of sugar, only amorphous granules will be found on miscroscopical examination.

The importance of a correct diagnosis of diabetes, not only with our private and hospital patients, but in examinations for life insurance, demands the greatest care in the tests for sugar in the urine.

It will be well at this point for us to recall some of the fundamental facts concerning the physiology of the carbohydrates. I can condense these in the form of brief statements.

A food is a substance which when taken into the body aids in building up or repairing tissue, or supplies the body with energy.

A food principal, or a food-stuff, is the nutritive part of a food.

While the number and kinds of foods are practically unlimited, there are only five food principles. These are proteids, fats, carbohydrates, inorganic salts and water. We may leave out of consideration for our present purposes further reference to the inorganic salts and water. An average man doing moderate work needs in his daily food about one hundred twenty grams of proteid, eighty grams of fat, and three hundred thirty grams of carbohydrates.

In the definition of a food as given above it is stated that one of the objects of food is to supply the body with energy, and for our present purposes we may consider this as the sole object in the taking of food. The temperature of the body must be maintained and all movements, both voluntary and involuntary, result only from the expenditure of energy. We cannot assign abstract force to the muscles or other tissues, and we are placed under the necessity of taking into our bodies substances that contain potential energy which may be liberated in the tissues. These substances are foods. We measure the quantity of food needed by a man of certain weight who has to accomplish a given amount of work, very much as we calculate the amount of coal necessary to burn in order to enable a locomotive to pull a train of known weight. We measure the value of a food by the number of calories it liberates in the body. By a calorie we mean the amount of heat necessary to raise one gram of water one degree centigrade. An adult man utilizes from thirty-five to forty calories for each kilogram of his body weight in twenty-four hours of light work. Therefore, a man of seventy kilos. weight needs in his daily ration material that will supply him with from twenty-four hundred and fifty to twenty-eight hundred calories. One gram of albumin burned as it is in the body yields four and one-tenth calories. One gram of fat oxidized into carbonic acid and water yields nine and three-tenths calories. One gram of carbohydrate oxidized to carbonic acid and water yields four and one-tenth calories, and one gram of alcohol seven calories. It may be seen from these figures how the average man obtains from the mixed diet given above the desired calories:

120 grams of proteid yield..............120 x 4.1 = 492 calories.
80 grams of fat yield.................. 80 x 9.3 = 744 calories.
330 grams of carbohydrate yield.........330 x 4.1 = 1353 calories.
2589 calories.

These facts must be borne in mind every time the physician prescribes a ration for a diabetic. It is not sufficient to say to the patient “Do not eat starchy food and sweets and confine yourself to meats and fat,” but a diet table must be furnished and in case of an average adult this ration must contain twenty-five hundred available calories. Diabetics are sometimes injured by consuming too much proteid and sugar disappears from the urine when the amount of proteid that he is eating is reduced. I will return to this later.

Supposing that we have ascertained by the proper application of the tests already given that our patient is diabetic, the next thing to do is to determine to what extent he has lost the capability of metabolizing carbohydrates. The determination of this with a fair degree of accuracy is of the greatest importance in enabling us to decide as to the relative gravity of the case, and to properly treat it. At the time of the discovery of sugar in the urine the patient is on a mixed diet. We proceed to eliminate the carbohydrates from his food and to make good the calorie deficiency resulting from their withdrawal by gradually increasing the proteids and fats. I prefer to take about six days to gradually eliminate the carbohydrates and substitute additional proteids and fats. This means the reduction of carbohydrates at the rate of fifty-five grams per day. I have selected this rate of reduction because it is easily measured, since white wheat bread contains fifty-five per cent. of carbohydrates, and if the carbohydrates be restricted to bread it will only be necessary to decrease the bread, starting with six hundred grams the first day, by one hundred grams each day. Every day that the carbohydrate is being decreased fifty-five grams, the proteid and fat are increased. The fare for the first day might be ordered as follows:

BREAKFAST.

	PROTEID.	FAT.	CARBOHYDRATE.	CALORIES.
200 grams of bread........	14	..	110	508.40
150 grams of ham—boiled.	37.5	45	....	572.25
8 ounces of coffee—without sugar or milk.........	..	..	....	......
DINNER.				
200 grams of bread.......	14	..	110	508.40
100 grams of beafsteak—moderately fat tenderloin	18	10	....	166.80
20 grams of butter........	..	16.6	....	154.38
300 cubic centimeters of California Riesling	..	..	....	210.00
SUPPER.				
200 grams of bread........	14	..	110	508.40
100 grams beefsteak—sirloin	23	4	....	131.50
10 grams of butter........	..	8.3	....	77.19
5 ounces of coffee or tea without sugar or milk.	..	..	....	......
	120.5	83.9	330	*2837.32

On the second day the bill of fare would be changed to the following:

BREAKFAST.

	PROTEID.	FAT.	CARBOHYDRATE.	CALORIES.
180 grams of bread........	12.60	..	99.00	457.56
1 egg	6.00	6.00	....	80.40
150 grams of ham — boiled	37.50	45.00	....	572.25
8 ounces of coffee without milk or sugar.........	..	..	....	......
DINNER.				
160 grams of bread	11.20	..	88.00	406.72
150 grams of beefsteak—moderately fat tenderloin	27.00	15.00	....	250.20
20 grams of butter........	..	16.00	....	154.38
400 cubic centimeters of Riesling.............	..	..	....	280.00
SUPPER.				
160 grams of bread........	11.20	..	88.00	406.72
100 grams of beefsteak—sirloin	23.00	4.00	....	131.50
10 grams of butter........	..	8.30	....	77.19
5 ounces of coffee or tea without sugar or milk..	..	..	....	......
	128.50	94.00	275.00	2816.92

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* Of course, the diabetic is not able to utilize all of these calories.

On the third day:

BREAKFAST.

	Proteid.	Fat.	Carbohydrate.	Calories.
160 grams of bread........	11.20	..	88.00	406.72
1 egg....................	6.00	6.00	....	80.40
150 grams of ham........	37.50	45.00	....	572.25
8 ounces of coffee without milk or sugar.........	..	..	....	......
DINNER.				
120 grams of bread.......	8.40	..	66.00	305.04
200 grams of tenderloin ...	36.00	20.00	....	333.00
20 grams of butter........	..	16.60	....	154.38
400 cubic centimeters of Riesling.............	..	..	....	280.00
SUPPER.				
120 grams of bread.......	8.40	..	66.00	305.04
100 grams of sirloin.......	23.00	4.00	....	131.50
10 grams of butter........	..	8.30	....	77.19
5 ounces of coffee or tea without milk or sugar..	..	..	....	......
	132.50	99.90	210.00	2645.52

On the fourth day:

BREAKFAST.

	Protied.	Fat.	Carbohydrate.	Calories.
140 grams of bread.......	9.80	..	77.00	355.88
1 egg	6.00	6.00	....	80.40
150 grams of ham	37.50	45.00	....	572.25
8 ounces of coffee without sugar or milk.........	..	..	...	......
DINNER.				
80 grams of bread	5.60	..	44.00	203.36
200 grams of tenderloin ...	36.00	20.00	....	333.00
20 grams of butter........	..	16.60	....	154.38
10 grams of olive oil on lettuce	..	9.00	....	83.70
400 cubic centimetres of Riesling.............	..	..	....	280.00
SUPPER.				
80 grams of bread.........	5.60	..	44.00	203.36
150 grams of sirloin........	34.50	6.00	....	207.25
10 grams of butter........	..	8.30	....	77.19
5 ounces of coffee or tea without milk or sugar..	..	..	....	......
	135.00	110.90	165.00	2520.39

On the fifth day

BREAKFAST.	PROTEID.	FAT.	CARBOHYDRATE.	CALORIES.
120 grams of bread........	8.40	..	66.00	305.04
2 eggs....................	12.00	12.00	....	160.80
150 grams of ham.........	37.50	45.00	....	572.25
Coffee without sugar or milk.................				
DINNER.				
40 grams of bread..........	2.80	..	22.00	101.68
250 grams of tenderloin....	45.00	25.00	....	417.00
20 grams of butter........	..	16.60	....	154.38
10 grams of olive oil on lettuce (40 grams)......	..	9.00	....	83.70
400 cubic centimeters of Riesling..............	..	..	....	280.00
SUPPER.				
40 grams of bread.........	2.80	..	22.00	101.68
200 grams of sirloin........	46.00	8.00	....	263.00
20 grams of butter.........	..	16.60	....	154.38
5 ounces of coffee or tea without sugar or cream.				
	154.50	132.20	110.00	2593.91

On the sixth day:

BREAKFAST.	PROTEID.	FAT.	CARBOHYDRATE.	CALORIES.
100 grams of bread........	7.00	..	55.00	254.20
2 eggs....................	12.00	12.00	....	160.80
150 grams of ham.........	37.50	45.00	....	572.25
Coffee without sugar or milk				
DINNER.				
250 grams of tenderloin....	45.00	25.00	....	417.00
20 grams of olive oil on lettuce (100 grams).....	..	18.00	....	167.40
2 eggs....................	12.00	12.00	....	160.80
500 cubic centimeters of Riesling.............	..	..	....	350.00
SUPPER.				
200 grams of sirloin.......	46.00	8.00	....	263.00
20 grams of olive oil on lettuce (100 grams).....	..	18.00	....	167.40
2 eggs....................	12.00	12.00	....	160.80
5 ounces of coffee or tea without sugar.........				
	171.50	150.00	55.00	2673.65

On the seventh day:

	Proteid.	Fat.	Carbohydrate.	Calories.
BREAKFAST.				
2 eggs	12.00	12.00	....	160.80
10 grams of olive oil on some green vegetables	..	9.00	....	83.70
150 grams of ham	37.50	45.00	....	572.25
Coffee without sugar or milk				
DINNER.				
250 grams of tenderloin	45.00	25.00	....	417.00
20 grams of olive oil on lettuce	..	18.00	....	167.40
2 eggs	12.00	12.00	....	160.80
500 cubic centimeters of Riesling	..	..	....	350.00
SUPPER.				
250 grams of sirloin	57.50	10.00	....	328.75
20 grams of olive oil with green vegetable	..	18.00	....	167.40
2 eggs	12.00	12.00	....	160.80
300 cubic centimeters of Riesling	..	..	....	210.00
	176.00	161.00	......	2778.90

These tables differ from those generally prepared for diabetics in that they contain relatively more fat and less proteid. I am confident that proteid feeding is often overdone in this disease and it frequently happens that the amount of sugar in the urine decreases on cutting down the consumption of proteid. The reason for this is evident when we remember that the proteids are so split up in the body that every one hundred parts of this food principle yields forty-five parts of carbohydrate. For exact work in the selection of a dietary for the diabetic, gluten bread is unsuitable because it always contains some carbohydrate and you do not know how much unless you determine it in the preparation that your patient is using. Most patients soon learn to eat with relish olive oil as a dressing, with or without vinegar on lettuce or some other green vegetables. Cucumbers or greens may be used instead of lettuce. The eggs may be hard-boiled and cut up and used on the salad. It is supposed in these tables that the patient eats the fat as well as the lean in the ham. The weights given for the meats refer to the raw food as it comes from the butcher. Equivalents of other sugar-free alcoholic beverages may be substituted for the Riesling wine. If the patient objects to the use of alcohol in any form, equivalent caloric values must be obtained by the addition of more proteid or fat, one or both. However, whatever we may think of the propriety of the use of alcoholic beverages in health, they certainly are often of great value to the diabetic and as long as the amount given in these tables is not exceeded there can be no danger of alcoholic excess. Moreover, a fat and flesh diet is taken with much more relish if washed down with some agreeable alcoholic beverage. Of course sweet wines are not to be permitted.

After the patient has reached the bill of fare prescribed for the seventh day he should continue this for at least five days, during the last two of which the urine should be collected and tested for sugar.

If sugar disappears from the urine under this non-carbohydrate diet the case comes under the head of what is generally termed "mild glycosuria;" if on the other hand sugar persists in the urine the case is designated as "severe glycosuria."

If the sugar disappears under the non-carbohydrate diet it is evident that the sugar in the urine comes only from the carbohydrates of the food and not from that resulting from the splitting up of the proteid in the body.

Suppose that we are fortunate enough to find that our case is one of "mild glycosuria," what is next to be done in regard to his diet? Shall we keep him on the strict non-carbohydrate diet? No, this would be very unwise. So far we have learned only that his capability of metabolizing carbohydrates is impaired and that he is still capable of metabolizing the carbohydrates that result from the splitting up of his proteid food. The next thing to do is to determine the extent to which he has lost the power of utilizing the carbohydrates of the food. In order to do this we try the above-given tables in inverse order for periods of five days, testing his urine during each period, until sugar reappears in the urine. Having ascertained in this way exactly the amount of carbohydrate he can utilize, we fix a steady diet for him in accord with this finding. By making these careful tests and by keeping the carbohydrate within the utilizable limit, we will often find that patients of this class improve and after a few months the amount of carbohydrate in the food can be increased without a return of the diabetic condition. Especially is this true in cases of mild glycosuria in patients over forty years of age. However, I must say that in practice there are likely to arise certain difficulties which interfere with the rules as here given. In cases of this kind, the capability of the patient for metabolizing carbohydrates varies greatly from time to time. Some of these oscillations we may be able to account for, while others prove to be wholly unexplainable. Notwithstanding these vexations to the physicians, the line of procedure as here given is the most scientific and consequently proves to be the most satisfactory. There are two objections to it. In the first place it demands much time and labor on the part of the physician. Secondly, it makes a like demand upon the patient and his family. However, neither of these should weigh against the patient's welfare. It is true in diabetes as it is in many other diseases that wealth, if it cannot buy health, may do much to secure comfort and may prolong life.

It must be understood that the diet tables which I have given must not be regarded as cast-iron ones. Other proteids and fats may be substituted for those given in the tables if the equivalent caloric values are secured. Moreover, the carbohydrate that is allowed may be given in some other form than bread. Indeed, milk is often the best form in which carbohydrates can be taken, and in some cases this food is especially well borne. It is well for the physician to give a list from which a selection can be made, but in doing this the amount of each article must be specified and the caloric value must not be neglected.

There are all grades of the "mild glycosuria." Some are very mild, requiring only a slight reduction in the carbohydrate food, while others are unable to utilize any carbohydrate taken as such in their food. **Von Noorden** indicates the condition of these patients by the following formula:

Tolerance = standard diet + x grams of starch. In this formula, the greater the value of x the more favorable is the case.

We now turn to a discussion of those cases which continue to excrete sugar when all carbohydrates are withheld from their food. In these cases, the larger the amount of sugar that remains in the urine after the non-carbohydrate diet has been followed, the more grave is the condition. As has already been stated, the sugar that is found in these cases after the patient has been upon a non-carbohydrate diet comes from the splitting up of the proteid. **Seegen** thinks that these two forms of glycosuria are sufficiently distinct to be classed as different diseases. However, the fact that cases of the first kind often run into those of the second is to me indicative of a difference in degree rather than in kind. A patient with mild glycosuria, who allows himself to indulge in excess of carbohydrate, is likely to find himself sooner or later a victim of the grave form of the disease. The physician should plainly state this fact to every diabetic patient. The excess of carbohydrates over that which can be utilized is not only useless, but is poisonous.

Pavy has recently (*Lancet*, June, 1900) written most instructively concerning this differentiation of the two forms of diabetes.

The mild glycosuria he designates as "alimentary" to indicate that it is dependent upon the food, while he employs the term "composite" for the grave form, indicating by this term that the sugar comes from both the carbohydrates and the proteids. He thinks that the continued or frequent presence of diacetic and beta-oxybutyric acids in the urine of the diabetic is indicative of the composite form, inasmuch as these acids have their origin in proteid disintegration, and he depends upon tests for these substances to differentiate the two forms. Since beta-oxybutyric is never present in diabetic urine without the coexistence of diacetic acid, and since the latter may be present without the former, a test for the diacetic acid is sufficient for clinical purposes. This is easily done inasmuch as ferric chloride gives a wine-red color when added to diabetic urine containing diacetic acid. The solution of ferric chloride should be slowly dropped into the urine. At first there is a dirty yellowish precipitate of the phosphates of iron which, however, dissolves on the further addition of the reagent. This test is more satisfactory if the phosphates are first precipitated by the addition of a few drops of a solution of neutral acetate of lead (ten drops of a saturated solution to ten cubic centimetres of urine) and filtration. With the clear filtrate, if diacetic acid be present, the reaction with ferric chloride is highly satisfactory. The test may be vitiated if the patient has been taking coal-tar derivatives.

Diabetic coma appears only in cases of grave glycosuria and while we do not know what the special poison is that induces this serious condition it is highly probable that it has its origin in the disintegration of nitrogenous substances. It is quite certain that coma is not due to acetone, diacetic acid, or beta-oxybutyric acid. **Sternberg** thinks it probable that the coma of diabetics is due to beta-amidobutyric acid an antecedent of beta-oxybutyric acid in the acetone chain. The injection of this substance intravenously in animals induces symptoms quite similar to, if not identical with, those of diabetic coma. In grave glycosuria the quantity of ammonia eliminated in the urine is often multiplied many times. In the daily renal excretion of healthy men the amount of ammonia is about one gram, while in severe forms of diabetes it often amounts to from four to six grams, and in one instance has been reported to be as high as eleven grams. The increase in the amount of ammonia in the urine is most likely due to a condition of acidemia. Theoretically the administration of sodium bicarbonate should be beneficial in averting diabetic coma, but practically the results have not been satisfactory. We know that carbonate of ammonia is an antecedent of urea and that the administration of large amounts of acid retards the conversion of ammonium carbonate into urea and leads to increased elimination of ammonia in the urine.

Since in severe or composite glycosuria a part of the excreted sugar comes from the proteids it is evident that the urine cannot be freed from sugar by dieting. Moreover, the more dangerous poisons have their origin in nitrogenous substances and by excessive proteid feeding we may increase the amount of sugar in the urine. Therefore the dieting becomes a very serious matter. **Von Noorden** recommends that patients with this form of diabetes should be held to a strict non-carbohydrate diet four weeks out of every four months. I think it better to insist that the non-carbohydrate diet should be followed one week out of every four. I believe that these short and frequent periods are more easily borne by the patient and are more beneficial to him. During the intervals, from one hundred to one hundred and twenty grams of white bread or its equivalent in other carbohydrate food must be allowed daily. It it well to bear in mind that these cases are at present incurable, and that the best we can do is to prolong life. This should not, however, lead us into careless habits in the treatment of these cases, for after all the highest duty of our profession is to lengthen the hours of human life.

ABDOMINAL VERSUS VAGINAL HYSTERECTOMY.*

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The question of the best approach, surgically, to the uterus and adnexa has evidently not been settled judging from the amount of discussion of late upon this important subject.

Whatever I may offer will not likely be accepted by those who may be advocates of either one or the other methods. It is simply a question whether you can do best what you see, or what you do by feeling and groping largely in the dark. In other words it is working in a light or dark passage. I take it that no operator would be so fixed in his views as to select one of these methods to the exclusion of the other. Removal of the uterus is done for the most part for carcinoma, and it is along this line that I will present the subject.

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*Read before the Mississippi Valley Medical Association at the Asheville (North Carolina) meeting, October 9, 1900.

Cancer of the uterus is not an infrequent cause of death in women. Its early recognition and removal has been so generally recommended that nothing further can be said upon this point other than to dogmatically emphasize the fact. The question, however, of its recurrence is one of important consideration and is immediately connected with the method of its removal. The manner of recurrence of cervical carcinoma is either by: (1) Continuity, that is, by extension into the broad ligaments, vagina downwards and other contiguous parts, as the bladder and rectum and occasionally to the body of the uterus—the adenoid variety attacking the body primarily. (2) Metastasis through the lymph channels, and by distant direct implantation. Authorities are not agreed as to which of these two forms of recurrence is most frequent, yet this is not a point of importance, for it will be an impossibility to diagnose beforehand whether the recurrence is to take place by continuity or metastasis. We are to be governed in either instance by the method of operation that will offer the best advantages in avoiding a recurrence; and in order to illustrate better what I wish to offer I will describe two pictures, cases that I have operated upon, one of abdominal hysterectomy and the other a vaginal hysterectomy.

Picture 1--Abdominal Hysterectomy.—Mrs. M., aged fifty-seven, gave a history of pelvic trouble dating back to her last confinement when she probably had a left salpingitis. Menopause occurred at the age of forty-eight. For two years previous to the time of operation she had a vaginal discharge, bloody and watery, with an offensive odor of late, general condition fair, no cachexia. Vaginal examination revealed a ragged ulcerating os uteri together with an indurated and slightly fixed condition of the uterus to the left. Rectal and bimanual manipulation did not reveal whether the fixed point was extension of the disease (which the microscopist stated was carcinoma) or an old inflammatory exudate. Here was an undoubted case of carcinoma of the uterus not so far advanced but that surgical interference was indicated. In the opinion of the writer the abdominal route was the method that offered the best chance for effective work and assured the best interests of my patient. A long median incision was made and the patient placed in the Trendelenberg position. The omentum was found to be extensively adherent to the left. It was carefully separated from its attachment, ligated and portions removed. As I progressed I found induration extending along the left broad ligament, which was tied and cut away. The extension of the disease was downwards and in the mass was imbedded the left ureter. This part of the operation I scarcely need state required patient industry. I succeeded, however, in leaving the ureter intact and removing all tissue, glandular and otherwise, well beyond its environments. The uterus was removed in the usual manner, the vaginal opening in the peritoneum closed by two rows of interrupted catgut sutures. I forgot to state that the broken down cervix was previously cut away as much as possible, and the uterine cavity cureted to avoid septic infection. The abdominal wound was closed with interrupted silkworm-gut sutures without drainage. She made a proper recovery and it is now two years ago the 20th of May last since the operation was done and there is yet no evidence of recurrence.

Picture II.—Vaginal Hysterectomy.—Mrs C., aged thirty-seven, mother of five children, labors easy, with a history of continued uterine hemorrhage not severe for the last three months, latterly with a bad odor. Examination revealed involvement of the cervix, afterwards verified by the microscopist as carcinoma. Bimanual and rectal manipulation did not discover any involvement of the surrounding tissues except an enlarged tube and probably cystic ovary. The vagina was capacious, the uterus low down and freely movable—as promising an opportunity for a vaginal hysterectomy as one could wish for. Operation was performed September 9, 1900, after two days' preparation in the hospital, short time enough in any abdominal operation when possible. There was no breaking down of the growth, and as the uterus had been cureted a week previous I saw no use in first cutting away the growth in the cervix. A curetment with blunt instrument was done with irrigation, and a carbolic acid tampon inserted into the uterine cavity. Chloroform was used as an anesthetic, the patient having been put in the extreme lithotomy position with a "Clover's crutch." The cervix was seized with a strong Museux forceps and a thorough division made of the vaginal membrane around the cervix well up above the seat of disease. Blunt dissection made anteriorly separated the bladder from the uterus and an opening was made into the peritoneum which was forcibly stretched with the index fingers so as to admit a good-sized gauze pad. The same procedure was then done posteriorly, first tying the right broad ligament in sections well out from the uterus with a number three catgut ligature, then cutting it from its uterine attachment, and removing the right tube and ovary, which was accomplished with ease. The next step was the pulling down of the uterus and the application of a ligature on the left side. This was not so easy as I found an enlarged tube and cystic ovary with extensive omental and peritoneal adhesions. The former was tied and cut, while the latter was separated with tedious effort, during which time the cyst was ruptured, bathing the parts with its contents, evidently septic. I ligatured with difficulty the broad ligament in sections above the tube and ovary. The vaginal vault and peritoneum were approximated as much as possible, leaving an opening for drainage for the possible infection by the broken cyst and the considerable oozing that occurred, a wise provision as it afterwards proved. The cavity was thoroughly irrigated and a gauze drainage introduced, the vagina being packed with strips of gauze. I will state that the gauze drain was covered with gutta-percha tissue, a drainage that has served me best for several years in abdominal work where drainage was a necessity. The patient did well for seven days, when she had a sudden chill and a rise of temperature to 103.5° Fahrenheit. This occurred the following day when I broke with my finger through the drainage opening an abscess containing two or three ounces of pus. Continuing irrigation and drainage she made a good recovery and returned to her home on September 30, 1900. It will be observed that I did not apply the clamp forceps in this instance which would undoubtedly have expedited the procedure very much.

A seven-minute vaginal hysterectomy with clamp forceps is a brilliant feat. Did any of you ever listen to the groanings of a poor victim with these implements of torture dangling between her legs while at every inspiration and any movement of the body she cried with pain? Furthermore, did you ever sniff the foul stench in connection with this method of controlling hemorrhage? Did you ever see a poor woman with a leakage of urine from her vagina the result of the use of these same forceps? Did you ever hear the telephone ring in the middle of the night informing you that your patient was bleeding to death when in the afternoon of that same day you had removed these forceps? Would any of you think that it was scientific surgery to leave several forceps in an abdominal operation to control hemorrhage except in an extreme case? I wish at this time to enter my solemn protest against this barbaric act of using clamp forceps in doing a vaginal hysterectomy.

These pictures present, I assume, the true aspect of the subject. The first picture portrays what I never could have done by the vaginal method. The second portrays what I could have done better, safer and surer by the abdominal method. I would not have you understand but that under certain conditions the vaginal route in pelvic surgery offers at times equal or better advantages than the abdominal route.

Conclusions.—All things being equal the abdominal route offers advantages for a more complete hysterectomy than the vaginal route. First, you are better able to see what you are doing; second, you are much better able to control hemorrhage than by the vaginal route where you are working in a dark cavity; there is less liability of slipping of the ligatures, and if they do slip they are got at more easily than by the vaginal section; third, the danger to the ureters is minimized, and if injured the opportunity for repair is better, while if injured by the vaginal route you would have to do an abdominal section to make the repair; fourth, the prevention of sepsis is more certain by abdominal than by vaginal section, aided in the first instances by the Trendelenberg position which gives opportunity for full protection of the intestines and peritoneum, while in the latter the opportunity for protection is limited, as it is an utter impossibility to render perfect asepsis in the vagina where there has been a long standing infectious disease.

TYPHOID FEVER.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN an address delivered before the American and Surgical Faculty of Maryland last April, DOCTOR W. W. KEEN said:

"Hygiene or sanitation has been a very large element in arresting the ravages of disease which in former times swept over entire nations, and it is a source of pride to us that among the foremost sanitarians in every community are the doctors. If the voice of the medical profession was heeded, even the diseases which have been largely abated would almost, if not entirely, disappear."

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*Read before the STATE CONFERENCE OF HEALTH OFFICERS, at Grand Rapids, September, 1899.

The prevention of disease is one of the most important subjects of the day, and I am glad physicians are realizing more and more that their duty does not consist merely in providing remedies at a fixed price for the diseases of individuals, thereby profiting by the distress and suffering of their fellowmen, but that they are the exponents and guardians of the *public* health, whose duty it is to *prevent* sickness by the discovery and enforcement of such protective measures as conserve health and prevent the development of disease germs.

As a member of our State Board of Health, I wish to thank the distinguished gentlemen who have preceded me this evening for having come so far, as several of them have done, to instruct the health officials of this State how to prevent disease and prolong the lives of our citizens. I am proud also to tell you that the pioneers in this work of sanitation in this State have been the members of the Michigan State Board of Health. The effectiveness of their work during the last twenty-eight years is nowhere more manifest than in the reduction of the mortality of some of the most common of the preventable diseases, such as tuberculosis and typhoid fever. The number of deaths from consumption has been reduced from one hundred and twelve per one hundred thousand inhabitants for the five years 1870 to 1874, to ninety-eight per one hundred thousand inhabitants for the years 1894 to 1896 inclusive, while the death rate from typhoid fever for the same period was reduced from sixty-four to twenty-four. But there is still room for much improvement, as a death rate of twenty-four per one hundred thousand is much larger than it should be. The typhoid mortality in German cities of over fifteen thousand population in 1895 to 1898 was ten per one hundred thousand inhabitants, and in a number of the largest cities of Europe the rate had been reduced to three and four and five per one hundred thousand in 1894.

The consensus of opinion at the present time is that the typhoid bacillus is the specific cause of typhoid fever, which under favorable conditions retains its vitality for a long time outside of the body. It is not destroyed by freezing, but is rendered harmless in ten minutes by a temperature of 140° Fahrenheit. That it is not destroyed by freezing is illustrated by the outbreak at Plymouth, Pennsylvania, in 1885, where, out of a population of eight thousand, there occurred one thousand one hundred and fifty-three cases with one hundred and fourteen deaths from typhoid fever as a result of the contamination of drinking water by the discharges from a typhoid patient —the discharges having been thrown out on the snow and then washed into the water supply.

Animals are not subject to the disease. By a few investigators lesions of the intestines similar to those seen in human beings are claimed to have been produced by special methods of inoculation and in particular species of animals, but by none of the ordinary methods of inoculation are conditions produced in animals that are in any way, either clinically or pathologically, comparable to those found in the human subject suffering from typhoid fever. But since the specific microorganism is contained in the evacuations from the bowels of all typhoid fever patients, and in the urine of about twenty-five per cent. of all cases, it is manifest that all substances with which these discharges come in contact may become specifically contaminated and be capable of conveying the disease.

Typhoid fever is disseminated in a variety of ways, but most frequently through water, soil, and through green vegetables that are eaten raw and which have been grown on soil fertilized with human manure. It is not infrequently disseminated by milk which has become infected by water polluted with typhoid evacuations. Attention has recently been directed to raw oysters as a possible disseminator of this disease. Milk and other food may also be infected by insects which have been in contact with fresh typhoid stools and thus become means for the conveying of the infection.

Typhoid fever is not regularly contagious. It is seldom contracted by breathing the same air which a typhoid fever patient does. Diseases that depend for their existence upon the presence of pathogenic germs in the tissues are known as "infectious diseases," which term refers to the *morbific agents* causing disease, and implies nothing as to the *mode of transmission* of these agents. A contagious disease is one transmissible from individual to individual by immediate or direct contact. It is evident that the term "infection" is more comprehensive than the term "contagious" which relates only to the manner of transmission. Infectious diseases are disseminated *indirectly*, in a round about way, by means of the water, the soil, or the food, to which the morbific agents from a case of infectious disease have gained access, while the contagious diseases spread, as stated, by direct contact, from the sick to the well individual. It is manifest, therefore, that all contagious diseases, such as smallpox, measles and scarlet fever, are infectious, but that infectious diseases, such as cholera, are *not* contagious. Some diseases, as erysipelas, pneumonia and tuberculosis, which are not usually contagious, may become so under favorable conditions.

There is no evidence that typhoid fever is often disseminated through the air, but OSLER says that "The possibility of the direct transmission through the air from one person to another must be acknowledged." STERNBERG says, however, that the idea of a typhoid-infected atmosphere cannot be entertained. The disease has long been attributed to *sewer gas*, but bacteriology gives no ground for believing that sewer air plays an important part in the conveyance of this fever. The prolonged sewer air investigations of J. PARRY LEWIS, of London, extending over a period of three years, failed, under all conditions, to find the bacilli in sewer air, even when they were found present in the sewage. The challenge of the *Western Reserve Medical Journal* in 1895 (in connection with a notable discussion in Cleveland) for the production of a *single well-authenticated case* of typhoid fever contagion by sewer air met with no response. Infection occurs in the majority of cases by way of the alimentary tract, which results from actually swallowing material that has come directly or indirectly from the bowels of individuals affected with the disease. We have no evidence that it occurs *regularly* in any other way.

It is now generally recognized that the most potent factors in *diminishing* the frequent occurrence of typhoid fever are an improved water supply and a reliable sewage disposal. BRYCE puts the whole matter into a nutshell when he says that in cities which obtain practically all their drinking water from a pumping supply whose source is beyond the possibility of contagion, typhoid fever will practically disappear. In districts where the water supply is obtained from shallow wells there is probably no more active cause of the spread of this disease than pollution of the soil by cesspools and privies. There is a widespread belief that well water as a rule is pure and wholesome, and that the greater the quantity of water drank from a well the greater is its purity, but a little thought will convince any one that such is not the case. Ordinary wells drain a very considerable area. **Parke** says that in ordinary soil wells drain an area whose radius is equal to *four times* the depth of the well. This being the case, there are but few wells in cities which are not liable to dangerous pollution. Moreover, the influence of *pumping* or other *sudden* withdrawal of water from the well is even more important, since in certain soils vigorous pumping may lower the level of the ground water to such an extent that impurities from two hundred to two thousand feet distant may be drawn into the well, which impurities would ordinarily tend to flow away from it. It is a striking fact that the most polluted water is often sparkling and clear, with a pleasant taste and no bad odor, so that all suspicion as to its true character may be wanting. Wells in thickly settled towns should, therefore, not be used to supply drinking water. as the soil is always liable to be so saturated with filth and sewage that it is practically impossible to locate wells which will not be in constant danger of receiving harmful impurities. It is, therefore, plain that the most important domestic preventive measure consists in the disinfection of the bowel discharges from all suspicious cases of intestinal trouble. If each evacuation, including the urine, from every case of typhoid fever was disinfected as soon as passed from the patient, it is safe to say that this disease would soon disappear in large measure from among us. The simplest method is perhaps to pour upon each evacuation three times its volume of boiling water, or double its quantity of a five per cent. carbolic acid solution, and then to cover the vessel and allow it to stand one or two hours before emptying it. Such discharges should then be disposed of by some method that will remove them quickly and completely from the neighborhood of human habitations. The latter can only be accomplished in cities by means of an efficient sewerage system. Many of our American cities are very deficient in this respect, Grand Rapids having less than one-half as many miles of sewers as it has streets, namely, one hundred and twenty-one and one-third miles of the former and two hundred and eighty-three and three-fourths miles of the latter.

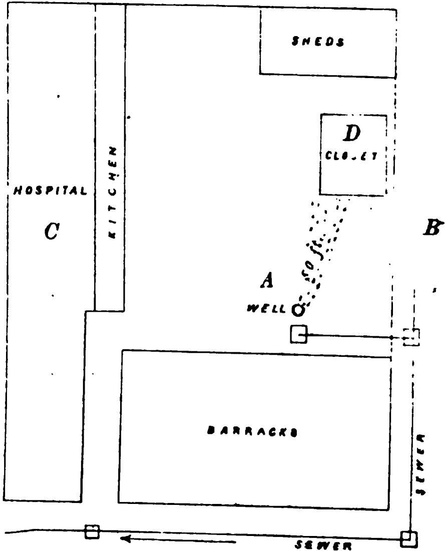
Many epidemics of typhoid fever due to the domestic use of polluted water are now on record, and while typhoid germs have rarely been discovered in such water, the facts of the transmission of the disease in this manner are absolutely conclusive. In order to determine whether typhoid fever, prevailing in a given locality, is due to the drinking water or not, we should first know whether the water *is* contaminated. The only sure means of determining this is, of course, by a bacteriological examination of the suspected water for the typhoid bacillus. Sterilized bouillon or beef-tea is inoculated with a small quantity of the suspected water, and kept at a temperature favorable to the reproduction of the typhoid bacillus. After the proper time has elapsed a small quantity is injected into a white rat or other animal. If the animal dies the internal organs are examined for the specific germs. This is a tedious and difficult process, and is not regularly carried out by any of the Boards of Health of the various cities. In only a *very few* well authenticated instances have typhoid bacilli been isolated from contaminated water. Typhoid has a relatively long incubation period, and by the time the disease manifests itself the contamination of the water may have disappeared. This was shown in Buffalo, where, the supply of pure water running short, ordinary lake water was turned into the city pipes for a short time. The number of cases of typhoid fever rose markedly about two weeks later; but by that time the water was perfectly pure again. As a matter of fact, we have to content ourselves with a *chemical* examination of the water. If there is abundant opportunity for the drinking water of a given locality to become contaminated, and if, when such contamination is prevented, the death rate from typhoid fever is markedly lowered, the presence of certain abnormal *chemical* constituents must be taken as evidence of pathogenic organic life and the water be condemned as unfit for drinking purposes.

Statistics show that cities drawing their water supply from rivers have a high death rate from typhoid fever. Grand Rapids is no exception to this rule.

EXTEMPORARY REMARKS.

I have had some diagrams drawn illustrating infection of typhoid fever from wells. This one is taken from a typhoid epidemic in Wittemberg, Germany, in June, 1882, reported by **Gaffky**, whom you all know is one of the leading German bacteriologists and scientists. It occurred in the third Brandenburg Infantry, which was located at Wittemberg. There were three hundred and eighty-six men in this regiment; two hundred and twenty-six were located in the barracks, one hundred and sixty in the town. Typhoid fever broke out, and from the nature of the epidemic and the way in which the disease was spread, it was thought it wsa due to drinking water, so an investigation was made along these lines. This epidemic is especially instructive in that it shows that in order for drinking water to give rise to typhoid fever it must be inoculated with the specific germ of the disease. Here are two wells (*A* and *B*),

WATER SUPPLY AND SICKNESS FROM TYPHOID FEVER AT BARRACKS, WITTENBERG, GERMANY.

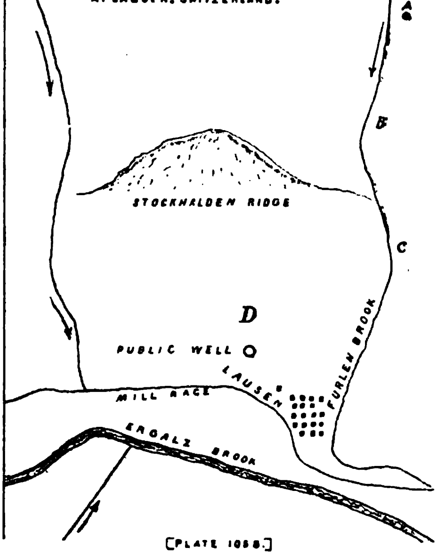


(PLATE 1037)

one inside of the arsenal and the other outside, both of which were used. Each was found on examination to be contaminated with fecal matter, the colon bacillus being found in both wells. Of the one hundred and sixty soldiers who were scattered about the city, twenty-four had the disease. These twenty-four lived in seventeen different houses. There were no cases of typhoid fever in the city during this epidemic aside from those among the soldiers who obtained their drinking water from the well inside the arsenal. Not one of the soldiers who drank exclusively from the well outside was ill with typhoid fever. The officers obtained their water from the second well, but not one of them had typhoid. On investigation it was found that two or three weeks before the epidemic there had been several cases of typhoid in the hospital (*C*), and their fecal discharges were emptied into the privy (*D*) which was fifty feet from the well. The closet was found to have a cement floor, which had two small cracks in it through which the contents of the vault percolated, and it was found in various ways that there was an undercurrent running from the closet through the ground towards the well. Owing to the length of time after the origin of the epidemic before an examination was made, **Gaffky** was unable to find the specific germ of typhoid fever in the well water, but the Imperial Board of Health concluded that the typhoid bacilli reaching the well from the hospital gave rise to the epidemic.

Another rather instructive case I have portrayed here, the epidemic in Lausen, Switzerland, which perhaps you have all heard of. It occurred in 1872. The town is situated in the Alps in the province of Basle. Between the town and a farm house in the valley represented by (*A*) is the Stockhalden Ridge. There had not been a case of typhoid fever in Lausen before in sixty years, when in July and August, 1872, an epidemic broke out that included seventeen per cent. of the people. The population of the town was seven hundred and eighty. One hundred and thirty people were taken sick inside of a month or six weeks. It was found that along in June of that year a man who had been away on a visit came home and sickened with typhoid fever living in this house (*A*), and his fecal discharges were thrown into the brook. Shortly after this his servant girl, wife and son were taken ill in the same way so that there were four cases there. Over at (*C*) are some meadows. It was usual every year when the water was low and the meadows needed irrigating, to divert the water from this brook upon the meadows. It was noticed for years when this was done that the water in the public well (*D*)

WATER SUPPLY AND SICKNESS FROM TYPHOID FEVER AT LAUSEN, SWITZERLAND.

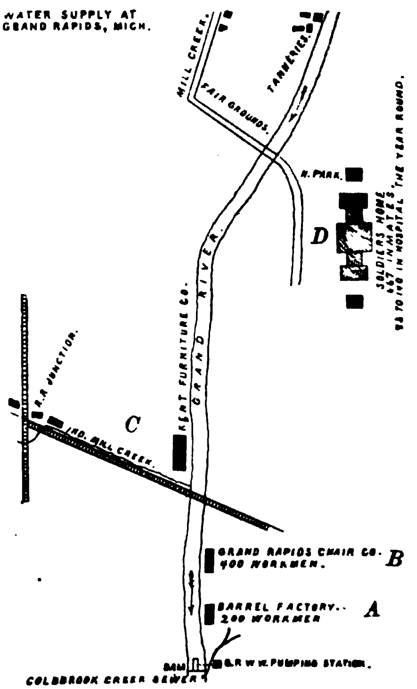


[PLATE 1058.]

and on the opposite side of the mountain, became turbid. Everybody in the town but six families obtained their water from this well. Six houses scattered about here and there had wells of their own and there was not a case of typhoid in any of them. Almost every other house in Lausen had one or more cases of fever. It was found that shortly after this man had his typhoid the cases began to break out, and as I stated, one hundred and thirty out of the seven hundred and eighty people contracted the disease. In order to prove the connection between the first four cases and the public well a mile away through the mountain, the health officer threw some salt in the brook at (*A*). Not long after the water in the well at Lausen gave the chemical reaction for salt. In order to prove that there was no underground channel carrying the water to the well, several hundred weight of flour was thrown in the water and intimately mixed with it, and none of it appeared at the well, seeming to show that the water was filtered in passing through the porous soil, but that the typhoid germs were *not* filtered out of the water in passing through a mile of soil. So you can easily understand how they can travel fifty feet.

I have had our city engineer draw a diagram representing the Grand River for three miles above the intake of the city waterworks of Grand Rapids.

Down here we find the dam and the pumping station. There is a large sewer, the Coldbrook sewer, running into the river just below the dam. Many of our citizens think it empties into the river above the dam, but our city engineer assured me this is not the case, so that no sewage from the northeastern part of the city gets into the river from the Coldbrook sewer. A quarter of a mile up the river (*A*) we have a large barrel factory with two hundred workmen, and the manager of the factory assures me that the workmen use the factory closets rather than those at their homes. A half mile up the river (*B*) is the factory of the Grand Rapids Chair Company, with four hundred workmen, emptying its sewage into Grand River. A mile above our pumping station, on the other side of the river, is the Kent Furniture Company (*C*), with a good many men. A little over two miles up the river is the Soldiers' Home (*D*), with six hundred and sixty-seven inmates, and a hospital averaging from eighty-three to one hundred and forty patients the year round, more patients than are contained in the combined hospitals of this city at any one time. Farther up



[PLATE 1080.]

the river are two tanneries. Of course they throw an immense amount of filthy animal and chemical refuse into the river. Now the question arises, can fecal matter containing typhoid bacilli from any of these places give rise to typhoid fever? We do not know yet what the life of the typhoid bacillus is in water. We *do* know, however, that they can live a long time in pure water, **Jordan**, of Chicago, having kept them alive ninety-three days in sterilized Lake Michigan water.

The Massachusetts State Board of Health took Merrimac River water and experimented with it and found that typhoid germs would live twenty-five days in it, long enough for them to be carried six hundred and eighty-five miles down the Merrimac River. I forgot to say that up the Grand River are several small towns, Lowell, thirty-five miles away; Ionia, fifty; Lansing, one hundred, and Jackson, with its large State Prison and thirty thousand people, one hundred and sixty miles away. Not one of these towns use Grand River water. They use well water. Grand Rapids is the only town on the river, to my knowledge, which uses this water. Now, our river runs at the rate of about a mile an hour. So that it would only take typhoid germs from Jackson six days to reach Grand Rapids, and I have just told you that the Massachusetts State Board of Health say they can live while they travel six hundred and eighty-five miles in the Merrimac River. There are a number of epidemics of typhoid that have arisen from contaminated water that has traveled a good many miles. I have told you of one at Lausen, where the germs traveled a mile through the earth.

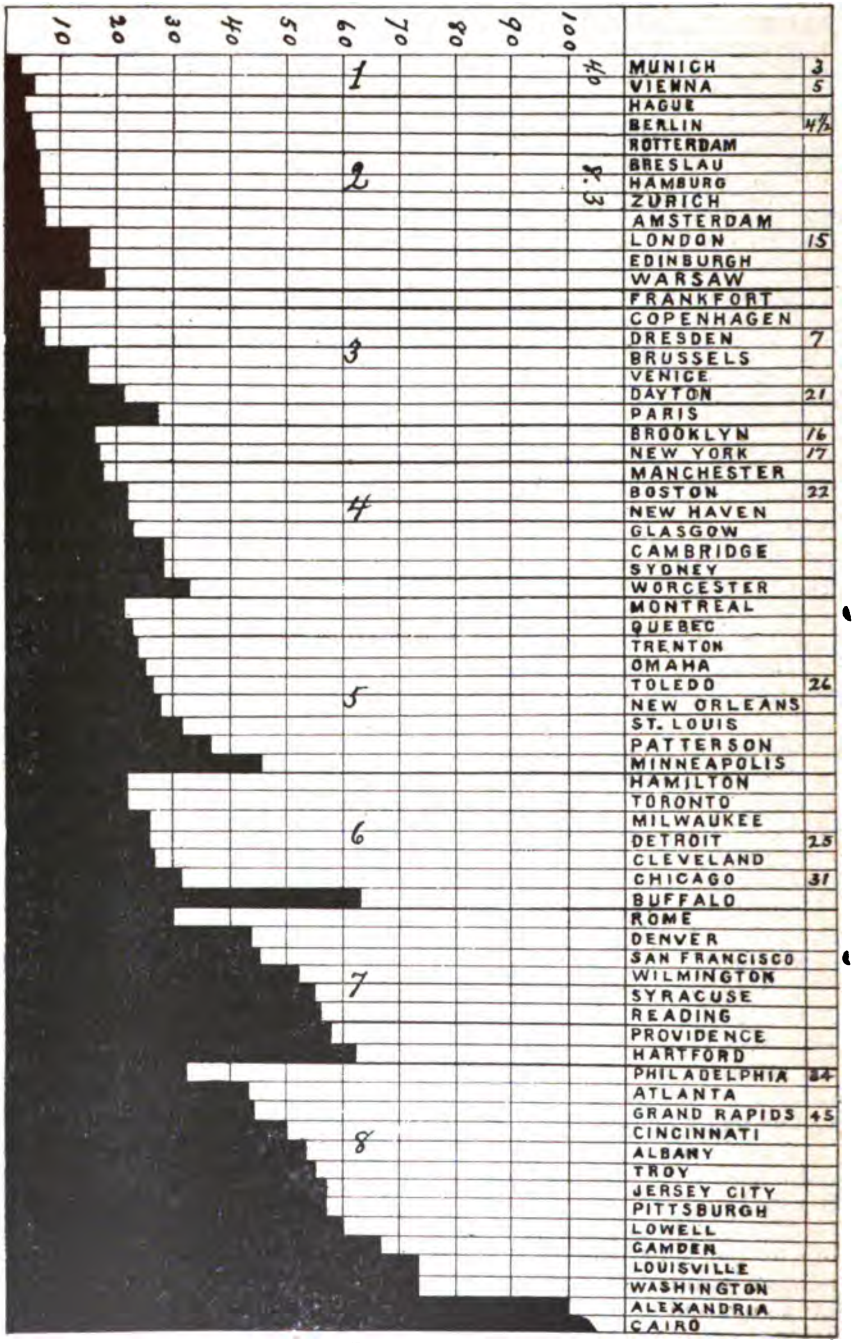
In 1890 in the little town of Lowell, Massachusetts, a town about half as large as Grand Rapids, typhoid fever suddenly broke out, and in one month there were more cases of the disease in Lowell than in the city of Boston for the same space of time.

On investigation the Massachusetts State Board of Health found a few cases of typhoid on the banks of a little creek that emptied into the Merrimac River, three miles above Lowell. Down the river nine miles farther was the town of Lawrence, where typhoid soon made its appearance. **Sedgwick**, who is known all over the world as an expert in this line, the expert bacteriologist of the Massachusetts State Board of Health, proved conclusively, and the entire Board agreed with him, that this epidemic of typhoid in Lawrence arose from that at Lowell. Fecal dischages traveled three miles down the Merrimac River into the intake of the public water supply at Lowell, and then through the water mains into the houses of its citizens, infecting them; then the intestinal evacuations of the sick were thrown into the sewers and traveled nine miles farther down the river to Lawrence and gave rise to a large epidemic of typhoid fever there.

A still more interesting epidemic is one that occurred in the Saint Lawrence State Hospital for the Insane on the Saint Lawrence River.

The building was put up and finished in January, 1891. It is one of the most complete hospitals in this country, containing all modern appliances for sanitation. The next month typhoid fever broke out and continued for four years off and on in large amounts. **Doctor Curtiss**, the expert of the New York State Board of Health, after an investigation extending over many weeks, determined that

WATER SUPPLIES AND DEATH-RATES FROM TYPHOID FEVER.



[PLATE 1056.]

the infection came from the town of Watertown, one hundred miles up the river. So that it is not at all fantastic to believe that Grand Rapids can obtain typhoid fever from Jackson, one hundred and sixty miles up the river. But however we theorize we know that such is the case. I have here a chart taken from a book published by JAMES H. FUERTES, of New York, two or three years ago, entitled "Water and Public Health." This diagram represents sixty-four cities, twenty-four foreign and forty at home, and shows the death-rate in various classes of cities referred to under varying conditions of water supply. It is proven that the water supply *does* have something to do with the death-rate from typhoid fever and it points to us a way out of the difficulty. The first group is composed of cities supplied from pure mountain springs, Munich, Vienna, et cetera. In the year 1894 the death-rate was three and a half per one hundred thousand inhabitants, one-eleventh of the death-rate of this city in the same year. Group number two, containing several other foreign cities, Hague, Berlin, Rotterdam, Amsterdam, London and Warsaw, shows a mortality from typhoid of eight and three-tenths per one hundred thousand during the year 1894, one-fifth or one-sixth of our own death-rate.

Coming along down we find Detroit in the sixth group. Her water supply is taken from the large lakes which are more or less subject to pollution. The death-rate of Detroit last year from typhoid fever was twenty-five per one hundred thousand; Chicago, a town that has been notorious for its large amount of typhoid, had a mortality in 1894 of thirty-one only. I say "only" as compared to Grand Rapids, but quite high as compared to some other places. Farther along down we come to class eight. In this we find our own city. The average death-rate of this class is sixty per one hundred thousand, our own for that year was forty-five. But you will be interested in knowing that Philadelphia had a death-rate of thirty-one and four-tenths that year, and the Common Council of that city is going to submit to the voters at the next election a bill to appropriate twelve million dollars to put in a system of filtration, such as MR. HAZEN showed us last night, and the sentiment is unanimously in favor of passing it, and yet their mortality from typhoid was eleven less than we had during the same period. Albany, which MR. HAZEN spoke of last night, and which has just spent a half million of dollars in putting in a system of filtration, had a death-rate in that same year of only fifty-two. Now, there are a great many people of course who always object to doing anything differently from the way in which it has been done in years gone by, but from a financial point of view it would be a saving for a city like Grand Rapids to do something to purify its water. We have lost in the last ten years four hundred people from typhoid fever.

I have counted the deaths in the city from typhoid for five years, the first three in the decade and the last two. I have not had time to go through the records of the Board ot Health and count the deaths for the whole ten years, but approximately we have lost four hundred people from typhoid fever during that time. If the average that DOCTOR VAUGHAN gave us last night is correct, we had four thousand six hundred other people ill with the disease during these same years. Without considering the amount of misery and expense caused by the illness of so many people, we will simply estimate the cost to our community of those who died. A common estimate of the value of a human life in books on sanitary science, and also in several of the courts, is five thousand dollars for people in the prime of life. The largest number of deaths from typhoid occur between the fifteenth and fortieth or forty-fifth year, so that five thousand dollars is a fair valuation for such lives. We have lost, therefore, in the neighborhood of two million dollars in the last ten years from typhoid fever in the city of Grand Rapids. If a system of filtration, such as MR. HAZEN spoke of last night, even though it cost one or two million dollars, were installed, as has just been done in Albany, it would pay for itself in the saving of life in a very few years.

Six or seven years ago this question was discussed a good deal in Grand Rapids and a number of letters were published by various people in the public press, among which were one or two of my own. I remember one in which I spoke of our large mortality from typhoid, it having been in the years 1890, 1891 and 1892—one hundred and thirty-two, a death-rate of forty-five per year for the size of the town at that time, which would mean about sixty per one hundred thousand inhabitants. I pointed out some of the facts I have just referred to and spoke of a system of sand filtration, suggesting that it might be wise for us to investigate it; and the next day the following editorial came out in the *Evening Press:*

"The *Democrat* yesterday contained a communication upon the city water from DOCTOR COLLINS H. JOHNSTON. As might be inferred, from the name of the author, it was of a very alarming nature, and as might also be inferred, it is somewhat misleading." That is why I took the figures just quoted from the book mentioned, a recognized authority which cannot be questioned. "There have been one hundred and thirty-five deaths in the city from typhoid fever during the past three years, and the inference is drawn that the city water was responsible for them. The inference is not justfied by the facts. The observation of other physicians, and reports obtained from other sources lead the *Evening Press* to the conclusion that the major portion of the families in which typhoid fever has occurred used well water instead of city water, and the proportion of such cases is so large as to raise a question as to whether the disease could in any instance be traced to hydrant water." I therefore employed a man to go to the health office and obtain the names and last residence of the fifty-three people who died from typhoid fever in the city the previous year (that year we lost fifty-three patients from typhoid), and then to go about the city and try to find out what water these fifty-three people drank. I did not expect to get anything very definite, nor did I. Only six of the fifty-three drank well water only. He could only get trace of eight who drank Grand River water exclusively. Twenty of the fifty-three drank both. Ten died in the hospitals and of these he could get no trace at all. So of course these figures were very inconclusive. "It is the fashion in almost every city to attack the water. Young doctors who desire to achieve a little notoriety make it a butt for their attacks, and as there are very few people sufficiently interested to take up the cudgels of its defense, they are usually safe in doing so."

I remember DOCTOR VAUGHAN six or seven years ago in an address upon water told us a little story. He said when a doctor told a man his liver was out of order he thanked him for making a pretty sharp diagnosis, but when he told him his drinking water was bad, he was ready to fight. I think possibly the newspapers are affected in the same way. "So far as Grand Rapids is concerned, however, such attacks are not justifiable. Assertions regarding the character of the water, from whatever source, are entitled to no weight unless accompanied by facts, and in this instance the facts all favor the healthfulness of the water." We really had more typhoid then than we are having now. For various reasons the mortality from typhoid fever has diminished all over the country the last few years. "It is a fact which the statistics of the board of health fully establish that Grand Rapids is one of the most healthy cities in the union. This would not be the case if the water were very bad." Still we had a death-rate in that year three times what it was in New York and Brooklyn.

SOME POINTS IN PRACTICAL MIDWIFERY.*

BY HARRISON D. JENKS, A. M., M. D., DETROIT, MICHIGAN.

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I AM rather loath to bring before the Fellows of the Academy a subject in which I can present nothing that is startlingly new, a subject, in fact, the essentials of which are so well understood that every physician, whether young or old, believes himself an expert in it. I shall bring up a few points in midwifery which are not so commonly dwelt upon, and yet points which are so simple that they are often neglected.

It will be generally agreed that, whenever possible, the pregnant woman shall put herself under the care of a competent physician as soon as she is assured of her condition. If this were done more often, the serious cases of extrauterine pregnancy, placenta previa, abortion, miscarriage and premature delivery should be less in number than they are at present. Fortunately for the woman, most pregnancies move along easily and uneventfully and require no medical attention. The presence of a flow of blood any time after the fourth month should always awaken the suspicion of a possible placenta previa, and the exact condition be determined at once.

The presence of small amounts of albumin in the urine does not seem to be so serious as some seem to think. I should say that the major part of the women presenting themselves during labor at the Boston Lying-in Hospital while I was on service, showed traces of albumin in the urine, and yet were delivered without any serious consequences. The presence of a good deal of albumin and a small amount of urine, especially if coupled with frontal headache or severe epigastric pain, is a very grave condition, and necessitates active measures to prevent a possible eclampsia. Hence patients should be told to notify the physician when the urine diminishes in quantity, and headaches or epigastric pain is present.

When the nipples are small or retracted, or badly inverted, some benefit can be had by systematic manipulation during the last month of pregnancy. No brilliant results can be expected, however. The milk ducts in the inverted nipples seem pathologically shortened, and there is always likely to be obstruction in them when the gland begins to secrete milk. In fact, I believe that it is neither safe nor wise to use some of these badly inverted nipples, but rather that a breast having such a nipple should be dried up before retention of milk leads to an abscess.

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*Read before the DETROIT ACADEMY OF MEDICINE.

Too much insistance cannot be placed upon the fact that bowels must be kept moving properly during pregnancy, for constipation in this condition seems to be especially disastrous in producing hemorrhoids. The ill effects of the hemorrhoids do not appear after the first pregnancy, but are most marked in the subsequent ones.

I do not believe the average physician is careful enough in diagnosticating the position of the fetus in the uterus. He seems contented usually to find that the vertex or breech presents, and then to let nature take care of the position. External examination properly carried on, especially when aided by the position of the fetal heart determined by the stethescope, will give often more accurate information of the position than vaginal examination. It usually requires no great skill to find out that on one side of the woman the smooth fetal back, and on the other side the uneven extremities, lie. Then if we remember that in vertex presentations nearly all cases are those of occiput left anterior, or occiput right posterior, we shall know that the fetal back will lie on the same side as the vertex. It seems impossible to see how a prognosis of the length of labor can be made without knowing what position the fetus has. For instance, occiput right posterior positions are much slower in the expulsive stage, because the vertex must, after it reaches the floor of the pelvis, rotate through three-fourths of a circle, while in the occiput left anterior it goes through but one-fourth of the circle.

Vaginal examination presents many difficulties which even the most careful will have trouble with, especially in the early stages of labor when the vertex is high in the pelvis. It is in this stage that external examination helps out.

We can always confirm our diagnosis of position when the head is delivered by watching external rotation or restitution, for if we recall the mechanism of labor we remember that the vertex swings back into the position it was in previous to external rotation.

It seems foolish to insist that when forceps are to be applied we know exactly the position of the fetal head. If it is necessary to know the position in noninstrumental cases it is doubly so in instrumental ones, where there is the introduction of rigid blades that can do incalculable damage to the soft parts. Then, too, with the patient under an anesthetic the accoucheur has no excuse for failing to find out all there is to find out. In operative cases it makes a good deal of difference whether the vertex is in an anterior or in a posterior position, for the application of forceps to the posterior position, especially if at the superior straight, is one of the most difficult of procedures. In my opinion it should not be done without at first attempting rotation to an anterior position with the hand in the vagina, and then only rarely. My practice in such cases is to allow the vertex to reach the pelvic floor, and rotate as much as possible under normal contractions before attempting instrumentation. Frequently these posterior positions present difficulties, as in a case I recall, where after the pelvic floor was reached the vertex failed to rotate. Under an anesthetic manual rotation to an anterior position was made. The hand was partly taken out in the introduction of the blades. The application, however, was so easy and accurate that I was surprised to find on delivery that the vertex had rotated backward to its original posterior position, and I delivered it face to pubis, fortunately without such a bad perineal tear as we usually get in such cases.

Forceps deliveries nowadays are much more common than they used to be, and perhaps rightly so, if skill is used, as it should be, in determining just which cases need it. One of the most expert obstetricians that I know used to say that where no progress in the second stage had been made for from an hour to an hour and a half the accoucheur was justified in using forceps. As a result he had instrumental deliveries in about fifty per cent. of the primiparæ and in about twenty-five per cent. of the multiparæ. I might say, however, that his instrumental deliveries as a rule produced no more damage than natural ones. I think this can be rarely said of most of us.

Forceps, then, should be used with great care when the vertex is at the pelvic brim, especially if unengaged, or when in a posterior position unless rotation has taken place. Often, I believe, version is preferable to those high deliveries, especially of posterior cases. To apply forceps when the vertex is not even engaged and then blindly pull in the hope the vertex will get into a favorable position seems to belong to the butcher, and not to the trained obstetrician. If we remember the old rule, that if more force than that exerted by the right forearm is needed something is wrong, which a more careful diagnosis of the position, and a more careful application of the forceps might correct, less damage to the woman's soft parts would occur and less gynecologic treatment later would be needed. A little point which helps determine position where forceps are used is this: When the forceps are almost locked and the upper edges of the handles are found to turn inward, so that locking is not easy, the forceps are being applied to an unrotated posterior position.

It is amusing to hear an accoucheur say that he never has a tear of the perineum. I always feel that he does not look for it or is unable to tell one when he sees it. Certainly perineal tears do occur, and with a good deal of regularity if they are looked for, not always great to be sure, but practically every primipara has more or less bruising of the vaginal mucous membrane, if not of the levator ani muscle itself. It seems impossible for the fourchette to escape intact after the delivery of a full-term fetus as we so frequently hear stated. Of course when perineal tears, even those slightly involving the levator ani muscle are discovered, a good surgeon will suture them just as he would suture any open wound involving a muscle, for two reasons, first, to prevent infection of an open wound; and second and more important, to restore the perineal body so that the uterus may have its natural support. In this way the possibility of rectocele, cystocele, and prolapse of the uterus in later life will be avoided.

When during the puerperium the breast milk needs to be dried up, the following simple method can be used: Apply a firm breast bandage, one that will cause even pressure on all sides of the gland. An impromptu one can be made from two towels. The bowels should be kept moderately active with a saline cathartic. More important than all, there should be no manipulation of the breast, particularly by the breast pump or massage. By this method the gland dries up quickly and easily and with possibly a few hours of discomfort when the gland first fills up. It certainly is not physiological treatment to pump out the milk when we know that it is by constant emptying that the gland tissue has a chance to secrete more milk. We further know that the milk secretion of a cow is kept up by the periodic emptying and filling of the milk glands. Why not have the same thing in the woman? Caked breast and abscess are unknown if this method is used and the breast is left alone.

The slight erosion on the upper surface of the nipple so common in primiparous nursing women heals readily when touched with a strong solution of nitrate of silver, while the fissures and cracks at the base of the nipple improve at once when collodion, or compound tincture of benzoin are applied, and a glass nipple shield used for a day or so, or in the bad cases, suspension of nursing on the afflicted breast for twenty-four hours. If these open wounds are attended to at once, abscess can usually be avoided. The woman should be instructed to notify the physician as soon as one of these lesions of the nipples appears, so that active treatment may begin at once. She should be especially warned to let her physician know as soon as a localized tenderness in the breast appears, as this is the half-way point between a sore nipple and an abscess. When pus has once reached the glandular tissue, incision and drainage is necessary.

There is a general rule, understood by most women, that the lying-in woman shall get up on the tenth day. Ordinarily the uterus that is properly involuting should reach the brim of the pelvis by the tenth day. I fancy that from the fact that the uterus could not be felt through the abdomen it was taken for granted that it had reached a proper size. Some uteri involute much more rapidly than others, so that if we wait until the fundus is at the pelvic brim, one woman can get up at the end of a week, while another should not do so for two or even three weeks. I think that the primiparous woman should be kept in bed as a rule longer than the multipara, because it is desirable to have the uterus reach a depth not greater than three inches after the first labor. Since the uterus does not reach a normal condition under favorable circumstances until from seven to ten weeks after delivery, more attention should be paid to this point than the physician usually gives. It is during this period that the woman gets her subinvolution, and the sequelæ which the gynecologist is so apt to see as a result of childbirth. It is during this period, too, that properly instituted treatment is most effective. Hence it seems impossible to make any rule as to how long the woman shall stay in bed, or as to when she shall get about actively, but the time must be determined for every case. It is pretty safe to say to the woman if flowing continues after two and one-half to three weeks, she should have some help in reducing the size of the uterus. I have seen a uterus measuring four and a half inches in depth on the thirteenth day after labor reduced to three inches in two days by confinement to bed, hot douches each containing two gallons of water three times a day and fifteen minims of fluid extract of ergot every three hours. There was also a marked improvement in the heavy relaxed feeling of the pelvic organs.

97 Lafayette Avenue.

COMPLICATIONS OF SPECIFIC URETHRITIS.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN calling your attention to this subject, my chief object is to try to impress upon you how very serious a disease ordinary gonorrhea is and how far-reaching it is in its effects. I claim that in a great majority of cases, it is a constitutional disease and more to be dreaded than syphilis. RICORD was not far astray when he said: "Anybody can tell when gonorrhea begins, but GOD alone knows when it will end." Modern methods of treatment have not modified this dictum to any extent. Why not regard specific urethritis just as much a constitutional disease as typhoid fever? In both diseases there is infection, ulceration, absorption of the germ peculiar to each or absorption of the toxins produced by the germs, glandular involvement, pain in the parts affected and severe backache resembling lumbago, often high temperature and general malaise with constipation. In a majority of carefully treated cases of gonorrhea, the discharge ceases in from three to six weeks with *apparently* complete recovery. Typhoid lasts about the same length of time. Unfortunately in gonorrhea there is often a tendency to chronicity, despite judicious treatment, the discharge becoming thinner and more watery, and persisting for an indefinite period. This symptom or complication is popularly called gleet.

During the past year I have kept a record of one hundred successive cases in males which were treated in my clinic and privately. Of these, seventy-four were either acute or subacute cases, and twenty-six were chronic. The following were the complications:

Adenitis	15%.
Acute prostatitis	9%.
Stricture	9%.
Epididymitis and orchitis	8%.
Balanoposthitis, requiring circumcision	6%.
Arthritis	5%.
Cystitis	3%.
Meningitis	1%.
Appendicitis	1%.
Some other constitutional disturbance	14%.
Total	71%.

The other twenty-nine acute cases seemed to recover without any complications, the average length of the disease being four weeks.

In considering the complications the chief practical points will be given. An exhaustive discussion of the subject would require more space than it is practicable to devote to them in a single paper. The danger of complications is dependent upon the severity of the inflammation and the degree and frequency with which the canal is mechanically disturbed in severe cases. The amount of exercise indulged in is an important factor. A gonorrheal patient is a sick man and should be in bed. As regards the etiology of the complications, the gonococcus is not the principal factor. Urethritis is a typically mixed infection; many of its complications are not immediately dependent upon the gonococcus. The chief complications are: (1) Severe chordee and hemorrhage; (2) folliculitis; (3) periurethral phlegmon; (4) acute prostatitis; (5) retention of urine from stricture; (6) cowperitis; (7) cystitis; (8) epididymitis and orchitis; (9) seminal vesiculitis; (10) lymphangitis; (11) papillomata; (12) balanitis and balanoposthitis; (13) adenitis; (14) gonorrheal arthritis; (15) gonorrheal neuroses; (16) gonorrheal stomatitis; (17) gonorrheal conjunctivitis; (18) gonorrheal ophthalmia.

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* Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

Chordee is a frequent complication and develops when the inflammation is at its greatest intensity, at which time the plastic exudate is most marked. It causes inconvenience during erection and hence pain is ususally worst at night. The chief dangers are rupture and hemorrhage with subsequent stricture or perhaps abscess.

Folliculitis.—This may occur at any time during the acute attack and sometimes later. Small, tender round or oval swellings about the size of a pea, appear along the floor of the canal. The condition is due to infection of the urethral follicles and sinuses of Morgagni, resulting in small retention-cysts, containing pus and mucus. They usually discharge into the urethra but may be the source of recurrent urethral infection.

Periurethral Phlegmon is a frequent complication and is an inflammation of the periurethral cellular tissue. Phlegmonous inflammation usually ends in suppuration, but resolution may occur without it. The favorite seat of phlegmon is the floor of the fossa navicularis.

Acute Prostatitis is a frequent complication of urethritis. It is one of the most serious and painful of the acute affections of the genito-urinary system. It would no doubt surprise us, if we knew how many of these cases of prostatic trouble in the middle-aged and old, could be traced back to a previous urethritis.

Retention of urine depends on inflammatory swelling of the mucous and submucous tissues along with deep muscular spasm. This is the inflammatory or congestive stricture and may be precipitated by sexual or dietetic excesses or indiscretions. Retention of urine, here, is essentially the same as when due to other causes.

Cowperitis is not a frequent complication. It is due to simple extension of the infectious inflammation to Cowper's glands, which lie upon either side of the urethra, behind the bulb and between the layers of the triangular ligament. There is likely to be considerable constitutional disturbance incidental to the close confinement of the inflammatory exudate within the triangular ligament. Suppuration usually occurs, but resolution may take place without it.

Cystitis.—LYDSTON, in his recent work, says: "The most frequent cause of acute cystitis is gonorrheal infection, the irritation produced by harsh treatment of gonorrhea coming next in order. The gonorrheal patient is allowed to go about as recklessly as when in his normal condition, the most active exercise being indulged in, in many cases without a word of warning from the medical attendant. As a result, extension of the urethral inflammation occurs and the patient is attacked by some such complication as cystitis, prostatitis or epididymitis."

Epididymitis is a common complication of acute urethritis and consists of an acute inflammation of the epididymis, which if it extends to the testicle is called epididymo-orchitis. The vas deferens is also involved in severe cases and the tunica vaginalis may be the seat of an acute hydrocele. Swelled testicle usually occurs during the first three or four weeks of the disease and is caused by the inflammatory process extending from the floor of the posterior urethra into the ejaculatory ducts and thence to the epididymis and testicle. In most cases it is unilateral, although both glands may be attacked at the same time or successively. It is not necessary to describe the symptoms except to state in passing that the temperature sometimes goes up to 104° or 105° Fahrenheit.

Seminal Vesiculitis, when gonorrheal in origin, occurs about the same time as epididymitis. The inflammation passes directly from the floor of the posterior urethra, through the common ejaculatory duct to either one or both vesicles. The symptoms are about the same as those of acute prostatitis, the patient having frequent and painful urination with vesical and even rectal tenesmus. There are often painful nocturnal pollutions, stained with blood. These patients usually complain of a fullness just within the anus or in the perineum. In severe cases there is more or less fever and general weakness. Chronic seminal vesiculitis may follow the acute form.

Adenitis or Bubo.—The inguinal glands often become tender and enlarged during acute urethritis, but luckily for the patient, they rarely suppurate. This was the most common complication in my one hundred cases occurring in fifteen of them.

Arthritis is not a very frequent complication of urethritis. Some patients are affected with this complcation with every attack of urethritis. It usually begins during the subacute stage or after the disease has become chronic. I have seen it occur, in one case, as early as four days after the onset of the disease and believe it is due to systemic infection by the products of urethral inflammation. The gonococcus discovered by **Neisser** in 1879, has been found in arthritic and tendinous effusions as well as in the exudations of pleurisy, and in the vegetations of endocarditis. **Petrone** found the gonococci in the blood of patients suffering from gonorrheal arthritis. In other cases, toxins are likely formed by the virulent germ infection, enter the circulation and finally reach the affected parts. I believe that strumous, cachetic, gouty and rheumatic patients are more predisposed to this complication than healthy persons.

Neuroses.—Cases are met in which arthritis limits itself to a single nerve as the sciatic. Myalgia and perineuritis sometimes occur in connection with urethritis. Cases have been reported illustrating the influence of urethritis upon the nervous system. **Dufour** witnessed a case, terminating fatally, in which the autopsy revealed softening and edema of the spinal arachnoid. **Tambourer** observed a patient who, in consequence of gonorrheal arthritis, developed phlebitis of the femoral vein, cerebral embolism, convulsions, paralysis and death, preceded by three days of unconsciousness. Cases of peripheral neuritis, neuralgia and muscular atrophy due to gonorrhea, have been reported by different writers. In 1899, I attended a young man who died of cerebral meningitis, seven days after developing a virulent urethritis. No postmortem was allowed. VENTURINI drew the attention of alienists to the importance of gonorrhea in the production of juvenile insanity. PANAS saw a case of double neuro-retinitis due to urethritis.

Gonorrheal Stomatitis.—SOUPLET, CUTTLER, ROSINSKI and LEYDEN have described cases of gonorrheal stomatitis communicated by coitus *ab ore*, PETIT relates a case of this form of stomatitis, the etiology of which was rather difficult to determine. "The patient, a man of thirty years, presented when first seen a very marked glossitis with thickened epithelium, which when scraped off, exposed to view a number of superficial ulcers. This condition involved the entire mucous membrane of the mouth. On the next day, the symptoms were worse. Mastication was impossible and the fetor was repulsive. The submaxillary ganglia were swollen and painful. The patient, being in the habit of buccal coitus, the woman by whom he might have been contaminated was examined. Nothing was found upon the genitalia of the latter except a slight uterine discharge. The gonococcus could not be detected by bacteriological examination, neither was that organism discovered in the mouth of the man having stomatitis. On the other hand, the suspected woman had had gonorrhea six years previously and the man ten years previously. Under these circumstances, the present outbreak could be explained only by two assumptions, either the gonorrheal stomatis was a residuum of a generalized gonococcic infection or the woman's clap had developed in her a condition of latent microbism capable of exciting an acute attack under the influence of irritation by favor of a gate of entrance or a predisposed soil.

DOCTOR N. SORRENTINO, of Naples, describes thirty-one experiments, performed upon rabbits. The conclusions deduced by him are as follows: The gonococcus produces locally an intense irritant action; large amounts injected cause marasmus. Genuine localizations may occur, as for example, synovitis. The localization is of traumatic origin and due to the production of a *locus minoris resistentiæ.* Endomyocarditis and serious alterations of the spinal cord may be excited. The other microbes contained in the muco-pus of gonorrhea are not pathogenic for animals and exert no action upon the human urethra. The gonococcus is endowed with a genuine pathogenic action, which may be localized at a distance from the point of injection.

Cutaneous rashes probably of an angio-neurotic nature have been produced by urethritis. In some instances, a generalized eruption has been accompanied by loss of the nails. It would seem, therefore, that gonorrhea is frequently if not always a constitutional disease. Space will not permit me to call attention to the many serious and disastrous results produced by gonorrheal infection in the female. Suffice it to say that if gonorrhea were eradicated, the gynecologist's work would be reduced almost one-half.

THE ANATOMY OF THE FIFTH NERVE AND ITS RELATION TO THE ETIOLOGY AND TREATMENT OF TRIFACIAL NEURALGIA.*

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[CONTINUED FROM PAGE 487.]

IT is a physiological law that a disturbance of a nerve either of nutrition, sensation or motion, produces a disturbance of the parts that they supply. Hence, when the nutrition of the iris or the tunics of the eye is impaired by prosopalgia, the parts are in no condition to withstand the attacks of microorganisms and there results iritis, keratitis, choroiditis, or an inflammation of the sclerotic coat; sometimes glaucoma follows.

Deafness is often a sequel of prosopalgia. Its explanation lies in the fact of the anastomosis of the otic ganglion with the ganglion of Gasser and the inferior maxillary nerve, and the joining of the portio dura of the seventh to the nervus petrosus superficialis which ascends from the otic ganglion to a small canal lying between the foramina ovale and spinosum, and passes backward on the petrous bone to the hiatus fallopii, where it divides into two parts, one of which enters the hiatus and joins the intumescentia ganglioformis of the facial nerve, the other passing through a foramen at the base of the petrous bone, enters and supplies the tympanum, where it communicates with a branch of Jacobson's nerve. Hence, we may trace a disturbance of nutrition to the middle ear which may result in deafness. I have seen a case in which deafness, but of a transitory character, was the result of a facial neuralgia.

Perversions of smell often arise as a complication to prosopalgia in which the ophthalmic branch was affected.

ERB reports having observed hypertrophy of the mucous membrane of the nasal and buccal cavity, as the sequel to prosopalgia.

It was VELPEAU who demonstrated that an irritation of the sphenopalatine ganglion, connected with the trifacial nerve will cause a flow of mucous from the nose. Hence we can readily see the pathologico-anatomical bearing upon the mucous membrane of the nose and mouth cavities to produce trophic changes. Sweating of the side of the face is sometimes seen. Ptyalism is not an uncommon symptom.

The hair on the side of the head affected has been known to become coarser, to have a rapid growth or fall out. I once saw a case in which a man became nearly bald on the right side of his head from neuralgia of the frontal and temporal nerves. The neuralgia was of the wandering kind and constant for over two years. It would sometimes be in the ophthalmic branch then travel to the superior maxillary or inferior maxillary branches.

Herpetic eruptions, zoster ophthalmicus or frontalis has often been observed.

Anesthesia of the parts affected sometimes occurs and when it exists, shows serious organic disease of the fifth nerve in its trunk and ganglion.

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

Contractions of the muscles of the face sometimes appear in the form of blepharo-spasm, sometimes as a contraction of the muscles at the angle of the mouth.

A distortion of the muscles of the face may appear and even a true convulsive tic. When prosopalgia accompanies hysteria, a contraction of any muscle or sets of muscles, often occurs.

These are the conditions of affairs that the practitioner and surgeon is often called upon to relieve or cure.

I have omitted the clinical picture of the symptoms, as they are familiar to you all.

We will now turn to the treatment, which consists in medication, diet, change of climate and operations.

In the line of drugs to be selected, one must decide the remedy that will remove the cause. It is fortunate that the causes of this disease are generally such as can be removed by the aid of medicines.

Among the leading causes stand anemia and debility. In the latter part of the last century and beginning of this, carbonate of iron in from one-half to one drachm doses, three times a day, was recommended by HUTCHISON, of Southwell, England. Sometimes the iron was combined with bark.

DOCTOR BOOTHWICK found subcarbonate of iron so successful that he used it constantly, in doses ranging from one drachm to a drachm and a half, four times a day, in bad cases.

DOCTOR PARR was the first to use arsenic which he found often cured his patients. One hundred and fifty years ago PROFESSOR MESMER cured many cases by his strange fanaticism, in France, where thousands were suffering from this disease.

DOCTOR TAYLOR, or Cricklade, Wilts, experimented with Prussic acid, with excellent results. He commenced his course with a drop of Scheele's preparation, which contained five per cent. of the anhydrous acid, in twenty-four hours, in divided doses. But as he became acquainted with the drug, he gave a drop to a dose and then increased it to two drops three times a day. In one case he carried it, by gradually increasing the amount, to twenty-four drops a day, in the course of a month's use.

In NAPOLEON's invasion of Russia, a large per cent. of his army suffered from neuralgia of the face. BARON LAUREY used the moxa with good success and DELPECH used the actual cautery.

Acupuncture, the zin-king of the Chinese, has been used in trifacial neuralgia, sometimes with success, the needle penetrating the branch of the nerve affected.

Among other remedial measures used, we find sulphate of quinine, when malaria exists. Remedies which have been used empirically sometimes with success, are strychnia, cod-liver oil and phosphorus.

Among the nervines used to relieve the pain, some of them having curative properties, are opium and its salts, gelsemium pushed to its physiological toxic action, valerian and its compounds, especially of zinc, aconite and its alkaloids, cannabis indica, camphor, chloral and cimicifuga with lithium salts.

Meglin old pill mass, consisting of henbane and sublimed oxide of zinc, has often proved valuable.

Poke root, blue flag, potassium iodide and bromide, the salts of mercury, and in these days the coal-tar derivatives are much used.

Potassium iodide with mercury is almost a specific in neuralgia from syphilitic origin.

The salicylate of soda, assafetida, and castorium are well tried remedies.

Iron in the form of Blaud's pills is recommended by HIRT. This physician thinks salicylate of soda should be pushed to the greatest tolerance of the drug.

In the treatment of facial neuralgias we must not forget the anatomical law of the distribution of nerves, which is, a nerve which influences a joint or muscle, has its terminal branches spread out over the skin that covers them.

Taking this as a precept we can use local anodynes, heat and electricity to advantage.

The liniment of chloroform, aconite, and alcohol has proven valuable. Leeches and blisters were used more in former times than at present.

GREGORY often used embrocations of cerussa acetate and electricity.

CULLEN used tartrate of antimony in facial neuralgia.

Transfusion has been tried in long continued cases, but without success.

OSLER recommends a liniment of camphor, chloral and menthol. Freezing with ether sprays and the continuous current are useful in some cases.

Oftentimes a change in climate or a rigid change in diet has cured otherwise obstinate cases.

We should not lose sight of the important fact of feeding in all cases of neuralgia.

People suffering with facial neuralgia seldom care about eating. I have often had their medicines given with milk, with an egg stirred into it, or cornmeal gruel, soups or other articles of diet, that would build up the impoverished condition of the patient.

Our western high altitudes often prove a haven of rest for many suffering from prosopalgia. Denver, Colorado, Salt Lake City, Utah, parts of Montana, California, Florida, and the eastern states have been the places of cure for many who have resided there.

Ocean trips to southern climates have been resorted to with good effect.

When all these things have failed and diseased bone or mechanical obstruction of a canal exists, the one thing left us is nerve stretching, excision, or bone operation.

As the disease had its birth into medical literature among the French, so they were the first to divide nerves to relieve prosopalgia.

MAYO divided the nerve in 1822–23; TODEA in 1823; and MAGENDIE in 1824. MAGENDIE divided the trunk of the nerve at its root, by introducing a small cutting stylet through the lower anterior margin of the petrous portion of the temporal bone.

The first English surgeon to operate and the one who did more to bring the operation into general use, was DOCTOR HOUGHTON, who succeeded in curing a case by dividing the supraorbital branch of the fifth.

Following him, DOCTORS CRUIKSHANKS and THOMAS succeeded in relieving a case that was under the care of DOCTOR DARWIN. DOCTOR DARWIN reported the case in full in the second part of his "Zoönomia." The report of the case shows the difficulty of operating on the branches of the trifacial even at the present day, so that it will not be a loss of time to report it.

"MR. BOSWORTH, between thirty and forty years of age, applied to me because of much pain about the left cheek bone. I suspected a disease of the antrum of Highmore, and as the second of the grinding teeth had been lately extracted, directed a perforation into the antrum, which was done, and the wound kept open for two or three days, without advantage. Afterward, by friction about the head and neck with mercurial ointment, he was for a few days copiously salivated, and had another tooth extracted, through his own request, and also an incision made in such direction as to divide the artery near the center of the ear next the cheek, which gave also a chance of dividing a branch of the affected nerve; but without success. When the pain was exceedingly violent, opiates were administered in large quantities; bark being used freely in the intervals, but without effect. The pain spread in various directions from a point in the left cheek a little before the ear, sometimes to the nose and fore part of the lower jaw, and sometimes to the orbit on the same side; the under part of the tongue being at the same time also affected. It returned on some days many times in an hour and continued several minutes, during which period the patient seemed to stretch and exert his arms and appeared to have a tendency to epileptic action, so that his life was rendered miserable.

"The complaint gradually grew worse, and MR. BOSWORTH removed to London for the purpose of putting himself under DOCTOR CRUIKSHANKS' care, and of submitting to any operation he should recomommend. The pain was now intolerably acute and almost unremitting. Opiates afforded him little or no relief, though taken to the quantity of six teaspoonfuls of laudanum at a time. The operation of dividing the diseased nerve was therefore determined upon. 'As the pain,' says DOCTOR THOMAS, in his letter to DOCTOR DARWIN after its completion, 'was felt more acute in the left ala of the nose and the upper lip of the same side, we were induced to divide the second branch of the fifth pair of nerves as it passes out at the infraorbital foramen. He was instantly relieved in the nose and lip, but toward night the pain from the eye to the crown of the head became more acute than ever. Two days after, we were obliged to cut through the first branch passing out at the supraorbital foramen. This afforded him like relief with the first. On the same day the pain attacked with violence, the lower lip on the left side, and the chin; this circumstance induced the necessity of dividing the third branch, passing out at the foramen mentale. During the whole period, from the first, attacks of pain on the side of the tongue were constant. These, however, disappeared on the division of the last nerve. The patient was evidently bettered by each operation, still the pain was very severe, passing from the ear under the zygoma toward the nose and mouth, and upward around the orbit. This route proved pretty clearly that the portio dura of the seventh nerve was affected, at least the uppermost branch of the pes anserina. Before I proceeded to divide this (as Doctor Cruikshanks had hitherbefore operated, but being unable to proceed because of sickness he requested me to operate, continues Doctor Thomas) I was willing to try the effect of arsenic; and he took it in sufficient quantities to excite nausea and vertigo, but without perceiving any good effects. I could only trust now to the knife to alleviates the misery, as the pain around his orbit was becoming most violent; and therefore intercepted the nerve by an incision across the side of the nose, also making some smaller incisions about the ala nasi. To divide the great branch lying below the zygomatic process, I found it necessary to pass the knife through the masseter muscle till it came in contact with the jaw bone and then to cut upwards. This relieved, as usual. Then the lower branch was affected, and also divided; then the middle branch running under the parotid gland. In cutting this, the gland was consequently divided into two equal parts, and healed tolerably well after a copious discharge of saliva for several days. I hoped and expected that this would be the last operation, and the pain still affected the lower lip and side of the nose, and upon coughing and swallowing, this misery was dreadful. This pain could only arise from the branches of the second of the fifth pair passing into the cheek, and lying between the pterygoideus internus muscle and the upper part of the lower jaw. The situation of the nerve rendered the operation hazardous, but after some attempts it was accomplished. This finished the series of operations and restored the patient to perfect health'."

This is a report of an operation completed before the days of anesthesia.

Since his day the divisions of the nerves have been done by many surgeons under more favorable advantages.

It belongs to an American surgeon to have demonstrated to the world the division of the trifacial nerve close to the ganglion and at the foramina that give exit to the divisions of the fifth nerve. Doctor Carnochan, of New York, performed on the 16th of October, 1858, an operation in which he raised a triangular flap, bounded by two incisions extending downward and outward from the inner canthus and downward and inward from the outer canthus of the left eye, as the neuralgia was confined on the left side of the face.

The two incisions met at a point half an inch in a vertical line below the infraorbital foramen.

From the apex of this triangular flap, a sharp-pointed straight bistoury was next thrust through the cheek into the cavity of the mouth and an incision was carried downward and inward through the upper lip, dividing it completely to a point midway between the median line and the labial commissures.

The upper triangular flap was dissected upward, and the two lower flaps were turned, one inward toward the nose and the other outward over the malar bone. The anterior surface of the superior maxillary bone and the lower margin of the orbit were thus exposed to view. The crown of the trephine, three-quarters of an inch in diameter, was then applied to the anterior wall of the antrum just below the infraorbital foramen, and a disk of bone was removed exposing the cavity.

The anterior part of the trunk of the nerve was now exposed. The infraorbital canal was next exposed and laid open with a small chisel and a hammer. The posterior wall of the antrum was dealt with in like manner exposing the nerve in the spheno-maxillary fossa (and let me say, here lays the ganglion of Meckel). The posterior dental nerves were here divided, also the branches going to Meckel's ganglion, and the branches running up to the orbit. Lastly the trunk of the nerve was divided with blunt-pointed scissors, curved on the flat, close to the foramen rotundum. The hemorrhage was not profuse, and the edges of the wound were brought together with thirteen points of a twisted suture. Fourteen months after the operation, the patient was in good health, and was entirely free from neuralgic pain.

LANGENBECK's operation consists in exercising that part of the infraorbital nerve which lies in the orbit. A tenotomy knife is carried along the outer wall of the orbit, and the nerve is divided where it escapes from the spheno-maxillary foramen. The incision is sometimes carried down to the foramen, the nerve caught up, drawn out and cut off. LANGENBECK's operation is not sure in its permanency.

In neuralgia of the superior dental nerve, not caused by caries of the teeth, ERICHSEN removed a V-shaped piece of bone by means of a Hey's saw, and more recently, in addition he clipped away the bone by means of cutting pliers and resected the nerve in the removal of bone.

GROSS, who directed attention to Erichsen's operation, used the pliers only for the removal of bone affected, not resecting the nerve. The pathology of that condition of diseased bone producing neuralgia, he speaks of in his pathological anatomy as a contraction of the bone cells and a narrowing of the canal the nerve runs in, hence the removal of the bony canal relieving the undue pressure upon the nerve trunk, results in cure of the neuralgia.

DOCTOR HAMILTON has devised an ingenious operation for the relief of facial neuralgia, which unfortunately does not prove itself permanent. He cuts a flap through the integument and part of the masseter muscle near the angle of the jaw; a trephine is applied over the jaw-bone and a button removed at the center of the bone; the canal running in the center of the bone is exposed, the nerve drawn up and resected.

When the neuralgia is not confined to one branch, but runs from one to another, and the pain is so great that it drives the patient to thoughts of suicide, everything being done that the science of medicine knows, there remains yet to be done a removal of the ganglion of Gasser. But this is a serious operation, not only at the time of operation, because of its close contact to important sinuses of the brain, but because of the trophic changes in the mucous membrane of the nasal and buccal cavities that occur after the destruction of the Gasserian ganglion.

As we remember its anatomy, the ganglion lays under the lower anterior border of the petrous portion of the temporal bone in the middle fossa of the skull. An incision made over the zygomatic process, the temporal fascia divided from its upper surface; a chain saw carried under the anterior and posterior end of the process divides the zygoma. It is turned back with the attachment of the masseter muscle. A flap V-shaped, in which the point of the flap is a half inch below the foramen ovale, is carried down to the skull at the anterior lower border of the petrous bone. The crown of a trephine is applied at this point, remembering the skull at this point is very thin, that below the crown, within the cranial cavity exists a part of the lateral, sigmoid and cavernous sinuses. A button of bone is removed, which exposes a reddish-gray mass about the size of a thumb-nail, which clings close to the dura mater. This ganglion of Gasser may be seized and removed, dividing the ophthalmic, superior maxillary and inferior maxillary trunks, the branches going to the tentorium and dura mater and the main sensory trunk. The wound may be closed, the zygoma replaced, the temporal fascia stitched to the fascia of the face and the parts covered with sterilized dressings. This will remove the pain but the after effects through the sloughing and wasting of mucous membranes described above, may be worse than the neuralgia.

[CONCLUDED.]

A SUMMARY OF THE YEAR'S WORK IN OBSTETRICS.*

By THEODORE R. MACCLURE, DETROIT, MICHIGAN.

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THE scope of the subject which has been assigned to me is so extensive and the time for preparation is so limited, that I feel what I have to offer will prove to be inadequate and irrelevant. It has been a great question in my mind just how to handle the subject. I have thought of two ways: one to make a very general review of the study that we have been pursuing for the last few months; the other to make a detailed resume of the various subdivisions of obstetrics as is given us with such clearness and precision through our text-book.†

It is not my intention to tire you with an exhaustive statement of the origin and history of the art and science of obstetrics from the earliest records down to the present time; but before passing let us not fail to notice, that in the brief period since America has vied with the nations of the earth in ameliorating human woes and suffering in the various branches of medicine, her contributions toward assuaging the pangs of childbirth equal if not surpass all those of the rest of the earth. This is exhibited not only by the current publications on this important subject, but by the monuments which have been erected by America's obstetricians in the way of published volumes, giving permanent records of not only their experiences and practices, but giving us the best experience of the world. These men could well be called benefactors, and I might mention some of them were it not for the fact that I feel unable to give them the praise worthy of the great works that they have accomplished. I wish to add in this connection that many comprehensive and valuable contributions to the science and art of obstetrics have originated from the brains and experience of some with whom we are quite familiar and who reside in our beautiful City of the Straits.

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* FOR several years at the Detroit College of Medicine, it has been the practice of WALTER P. MANTON, M. D., Professor Adjunct of Obstetrics, to assign subjects for short papers to be prepared and read by students before his class. These papers are usually from five to ten minutes in length and serve an interesting and useful diversion from the ordinary manner of instruction. This paper was designed to close the year's work; but on account of an outbreak of smallpox in the school and an early closure of the college work, the paper was not read. Its publication will exhibit what at least one student observed during his year's work in Obstetrics and may serve some useful purpose.

† "The Practice of Obstetrics," by American Authors. Edited by CHARLES JEWETT, M. D., New York City.

EMBRYOLOGY.

It is my regret that time has not permitted a more thorough review of the origin and development of the ovum through its various stages. To me this seems to be the underlying framework of a scientific understanding of obstetrics. True it is that embryology is a study by itself, but as it is a study of the freshman, the interval in our curriculum, between the study of embryology and obstetrics is too great. It is my opinion that embryology should immediately precede the study of obstetrics. It is a difficult branch, and a more mature mind is better able to follow its intricacies than is a medical student who has just entered college.

THE OVUM.

A fully developed ovum is a single spherical cell, about one one hundred twentieth of an inch in diameter, composed of a yolk, nucleus, a nucleolus and two developing membranes.

FERTILIZATION OF THE OVUM.

After rupture of a Graafian follicle, the ovum now fully ripe and in a condition for fertilization, migrates through the Fallopian tube toward the uterus. The point at which the male and female elements meet is not definitely known; but in the majority of cases, it probably takes place at the outer portion of the Fallopian tube. However, impregnation may take place anywhere from the Graafian follicle in the ovary to any place within the cavity of the uterus which is known as intrauterine pregnancy; or it may take place outside the uterus, in which case it is spoken of as extrauterine pregnancy. In the following I shall consider that the fertilization is within the uterus.

DEVELOPMENT OF THE EMBRYO AND FETUS.

The ovum and products of conception up to the fourth month of pregnancy are known as the embryo, and during the remaining period of pregnancy they are known as the fetus. The constituent parts of the ovum play a very important role and from them are developed the various fetal parts, somewhat as follows:

First Month.—Visceral arches and clefts readily distinguished. Spinal canal closes; buds of rudimentary extremities appear; indications of eyes, anus and mouth; and the heart is four-tenths of an inch long.

Second Month.—The embryo is about one inch long; the eyes, nose and ears are distinguishable; suggestions of hand and feet; and external genitals appear.

Third Month.—Products of conception about size of goose-egg; fingers and toes separated; nails as fine membranes; neck separates head from body; sex distinguishable; uterus formed; length about five inches.

Fourth Month.—Fetus about six inches long; head equal to about one-fourth of entire body; short hairs and lanugo are present.

Fifth Month.—Fetus about ten inches long; vernix caseosa forms; eyelids begin to separate; heart sounds perceptible; quickening takes place.

Sixth Month.—About twelve inches long; hair on head; eyebrows and lashes; testicle near rings.

Seventh Month.—About fifteen inches long; pupillary membranes disappear.

Eighth Month.—Sixteen inches long; left testicle descended; nails do not protrude beyond finger tips; lanugo begins to disappear.

Ninth Month.—About eighteen inches long.

Tenth Month—About twenty inches long; lanugo almost disappeared; skin pink; flexor surfaces covered with vernix; both testicles descended in males; labia majora in apposition in females; intestines contain abundance of meconium; and eyes open.

CHANGES IN THE MATERNAL ORGANISM.

The impulse started by the fecundation of the ovum inaugurates certain changes in the uterus preparatory to the reception of the fertilized egg, changes which in their early stages are probably analogous to those taking place at the menstrual period.

The muscular, vascular and nervous tissues of the uterus undergo hypertrophy, the increase in the thickness of the uterine walls being most marked at the placental site.

During the first three months the uterus remains within the pelvis but later rises gradually until at the seventh month it has reached the umbilicus and the ninth finds it at the ensiform cartilage.

There is slight hypertrophy and softening of the cervix; the apparent shortening of the cervix is due to the softening.

Slight flattening of the abdomen occurs during the first three months, but after that time the walls become more and more prominent. Owing to stretching and partial atrophy of the skin the abdomen and buttocks present bluish streaks—*lineæ albicantes.* Pressure may cause a separation of the recti muscles.

Irritation of the bladder, constipation, cramps in the legs, edema and varicose veins of the legs and vulva may result from pressure of the enlarged uterus.

The blood increases in quantity and owing to increased cardiac work there may be hypertrophy and dilatation of the left ventricle, and increased arterial tension.

Pressure of the uterus on the diaphram may embarrass respiration, and an increased amount of carbonic acid gas is given off from the lungs.

Owing to increased arterial tension, the amount of urine is increased and a trace of albumen is common.

The appetite is often capricious or depraved; nausea and vomiting are common, especially in the morning of the first three months; salivation may be present.

Marked changes in the mental characteristics of the woman are common; she may become fretful, peevish, irritable, emotional, melancholy, or mania may result.

During the first three months bodily weight usually decreases; but after that there is gradual gain, independent of the gravid uterus.

Glandular, fatty and connective tissues of the mammary glands are increased and often tender to touch. Nipples increase in size, and there appear the primary and secondary pigmented areola, most marked in brunettes. Milk may be expressed from nipples after third month.

DIAGNOSIS OF PREGNANCY.

A careful history of the case is essential. The signs of pregnancy are:

Cessation of menstruation is suggestive, but is valueless where pregnancy commences during lactation. Pregnant women may menstruate during the first three months.

Mammary changes.—The enlargement of the breasts, distended superficial veins, secretion of milk, and the dark areolæ are valuable.

Quickening appears about sixteenth week, at first feeble, later may become quite distinct: of less value, if subjective; very valuable if felt and observed by the physician.

Sympathetic nausea and vomiting lead to suspicion.

Vaginal signs.—A soft, velvety and compressible isthmus (Hegar's sign) and purple tint of mucous membranes of vagina are very valuable signs.

Internal ballottement is a sign of great import.

Auscultatory signs—Uterine and umbilical souffle are of very little value, but the fetal heart sounds are of exceeding diagnostic importance.

Differential diagnosis must be made from anteflexion, pedunculated fibroids, ovarian cysts, chronic metritis and subinvolution, retroflexion, enlarged organs, over-distended bladder and phantom tumors.

DURATION OF PREGNANCY.

No definite statement can be made of the typical normal length of the period of gestation, and it is impracticable to fix the exact date of labor. The interval between insemination and fertilization is not constant. We have no exact knowledge of the length of time during which the respective elements, the ova and the spermatozoa, may retain their vitality in the maternal passages. From the knowledge in hand at present, it is assumed that the time of fecundation may vary from a few days to a week or more after insemination. Again, gestation may be prolonged beyond the normal period or may fall short of it.

A number of methods for predicating the date of labor has been offered, such as mensuration of the uterus and quickening of the fetus; while they are diagnostic aids, they are only fairly reliable. Reckoning from date of quickening is unreliable because the period of quickening varies from the twelfth to the twentieth week. Naegele's rule is probably the most reliable: it is counting forward nine months from the beginning of last menstruation and adding seven days.

HYGIENE AND MANAGEMENT OF PREGNANCY.

It is the duty of the physician to keep his patient under surveillance. Many disorders and complications are so liable to arise during gestation, that the health and life of the woman and child depend upon the care and advice of the doctor in charge.

Early there are digestive disturbances and anorexia. The diet should be plain, simple, digestive and nutritious, and taken at regular hours. Small quantities of food should be taken during the last weeks of pregnancy.

Moderate and regular exercise is well borne and occupies the patient's mind; it is not only essential to normal gestation but conduces to easy labor, and is especially indicated in women of delicate health and feeble muscular development. Eight hours sleep at night and a midday nap are essential. Tight dresses and violent exercise should be avoided.

Development and cleanliness about the breasts and nipples should be enforced. Gentle use of mild and warm vaginal injections and topical applications of mild astringents may not only improve local condition but may ameliorate reflex nausea and vomiting. Sexual intercourse should be restricted in all cases, and prohibited where indicated.

The urinary excretions should be carefully watched and the functions of the kidneys regulated, because variation of the total solids excreted may be the warning signal of the approach of some troublesome and dangerous condition. Albuminuria should always be a cause for alarm.

Exposure to infection is attended with great danger to a woman just before and after labor because of a lessened vital resistance.

After the fetus is viable the obstetrician should make careful examination externally, and toward the last month of pregnancy internal examination should be made, to determine any abnormalities; and strict aspesis should prevail.

THE MECHANICAL ELEMENTS OF LABOR.

(1) The expelling powers;
(2) The passage;
(3) The passenger.

The expelling force is, chiefly, the muscular contraction of the upper uterine segment which, in the main, is involuntary, but may be modified or wholly arrested by emotional influences. The contractions are peristaltic in character, and intermittent. At the beginning of labor they recur about every thirty minutes, shortening as labor progresses, until at the acme of expulsion, they may be continuous. The duration of contraction at the onset is thirty seconds, gradually increasing as labor progresses. According to DUNCAN the combined power of the uterine and abdominal muscles attain from fifty to eighty pounds. The pelvic floor renders some resistance to birth until about the eve of expulsion, after which it inclines to impel the head forward in the direction of the outlet.

The Passage is an extremely complicated and tortuous path. The bones, ligaments, and muscles play important parts in its formation and, with the mobility of the pelvic joints, all have their functions.

The female pelvis sets at an angle of 143° and presents for consideration the plane of the brim or inlet, the plane of the outlet, and the middle plane or cavity, and each plane has several diameters, all of which have exceeding obstetric importance. The most important measurements are those of the bony pelvis which are as follows:—

	ANTEROPOSTERIOR.	OBLIQUE.	TRANSVERSE.
Brim	4 inches	4½ inches	5 inches
Midplane	4½ "	4½ "	4½ "
Outlet	5 "	4½ "	4 "

The "*axis*" of the pelvis is a line erected at right angles to the center of each plane, while the "*curve of carius*" is a curve which passes through each plane at the points where the axes are erected.

The Passenger is an important obstetrical character and might be likened to Goldsmith's country schoolmaster whose head was the largest portion of his body. The head of the fetus has a number of diameters each one of which has its significance, and the bones of the skull also accomodate themselves to circumstances. The biparietal, suboccipito-bregmatic and fronto-mental are each three and one-half inches, the occipito-frontal is four and one-half and the occipito-mental is five and one-fifth inches. By reason of the laxity of the joints in the cervical region the movements of extension or flexion and rotation of the head upon the trunk sustain important relations to the mechanism of labor.

PRESENTATION

is the relation of the long axis of the fetal ovoid to the uterine axis. The presenting part is the portion of the fetal ovoid which offers itself to the examining finger. Presentations are:

(1) Longitudinal:
    (A) Cephalic: (1) vertex, (2) face, and (3) brow.
    (B) Breech: (1) breech, (2) knee, and (3) foot.
(2) Transverse:
    (1) Shoulder, (2) arm, and (3) hand.

The vertex presents in ninty-seven per cent. of all cases of labor at term.

POSITION

is the relation of the presenting part to the quadrants of the pelvic brim, and the positions may be spoken of as being in right or left anterior or posterior quadrants, according to the part of the fetus that presents.

POSTURE

is the attitude of the fetus and the relations of the fetal members to one another. In normal posture the head is flexed on the chest, arms folded on the chest, legs flexed on the thighs and the thighs on the abdomen, and the fetus presents an ovoid shape.

LABOR.

Normal labor is that which terminates without artificial aid and without injury to mother or child and is spoken of as "eutocia" in contradistinction to "dystocia," or abnormal labor. Labor is divided into the "stage of dilatation," which ends with full dilatation of the utero-cervical zone; "stage of expulsion," which ends with the birth of the child; and the "placental stage," which ends with the expulsion of the placenta and membranes and complete retraction of the uterus. The first stage varies from six to eight hours for multipara and from ten to fourteen hours for primipara; the second stage averages two hours in primipara and one hour in multipara; and the placenta is usually expelled within twenty minutes after the birth of the child.

CAUSES OF THE ONSET OF LABOR

may be stated as: (1) Loosening of the ovum, converting it into a foreign body; (2) excess of carbon dioxide in the blood; (3) distention of the uterus by the growing ovum; and (4) mental impressions.

MECHANISM AND CLINICAL PHENOMENA OF THE FIRST STAGE.

The body of the parturient uterus is divided into the upper and lower uterine segments, between which is the "ring of Bandl," also known as the retraction or contraction ring. Three agencies are concerned in the dilatation of the cervix: (1) Softening of the cervical tissues; (2) hydrostatic pressure of the bag of water; and (3) contraction of the longitudinal fibres of the upper segment.

The pains of labor vary in character and intensity from the so-called false pains to the severe nagging pains, and those of dilatation are frequently not so well borne as those of the passage.

The show, the cervical and vaginal secretions, and the irritability of the bladder and rectum all have their significance. The maternal pulse rate is more rapid, and that of the fetus slower during the pains. The bag of water may rupture during any stage, or a child may be born with membranes intact; early rupture produces a condition spoken of as "dry-birth." This stage of labor is easily influenced by emotional causes.

MECHANISM AND CLINICAL PHENOMENA OF THE EXPULSION.

The head and trunk undergo a series of movements in their transit through the birth canal; these movements are: Descent, flexion, internal rotation, extension, restitution and external rotation, occurring in the order named.

Even in typical labors the head undergoes a process of moulding which conduces to the adaption of the head to the passage.

MECHANISM AND PHENOMENA OF THIRD STAGE.

After expulsion of the child the uterus closes about the placenta, tearing the placenta from its attachment; this detachment usually takes place during the first strong contraction. A retro-placental blood clot may aid in its detachment. After expulsion there is a slight pause in the pains, after which they begin and may be very severe, especially in multipara, and are due to the retention of blood clots. The lower uterine segment and cervix remain passive for several hours until the muscular structures regain tonicity, when the cervix regains its normal shape.

THE MANAGEMENT OF NORMAL LABOR.

As before stated, the physician should have careful surveillance over the urinary excretions and should have made sure that the nipples are in the proper condition, ascertain the presentation and position, location of the child's head, small parts, and especially the location of the fetal heart beat. The external and internal measurements of the pelvis should have been taken in order to detect any abnormality.

ANTISEPSIS AND ASEPSIS.

There are no more important precautions. Special attention should be given to cleanliness both from bacteriologic and from æsthetic standpoints. Sterilization may be effected by steam, dry heat and boiling. Among the most useful chemical germicides are mercuric chloride or iodide, and carbolic acid. Attention is called to careful and thorough cleansing and sterilization of the hands by various methods. Especial caution is enjoined relative to the aseptic condition of the nurse.

THE LYING-IN CHAMBER.

If practicable a large well-ventilated room with a sunny exposure should be selected, and the bed so located that plenty of light can be secured, with ample space on each side. A list of items needed should have been given the mother or the nurse a sufficient time in advance, that they can be carefully prepared; all dressings, pads, et cetera, to be used about the patient carefully sterilized; and the obstetric bed should be made into what has been designated as the "permanent" and the "temporary" bed. The permanent bed is made up in the usual way except a rubber sheet is placed under the cotton sheet, all being carefully secured in place. Over this is laid another rubber sheet and another cotton sheet. These two are pinned together and this is what is designated as the temporary bed; it can be removed as soon as labor has been completed, leaving the permanent bed unsoiled. This procedure and the details every obstetrician should adopt.

MANAGEMENT OF LABOR.

During the *first stage* we learn that the physician need not be in constant attendance, but can be in constant communication by telephone or otherwise. He should, however, be quite certain of the ability and training of his nurse. The patient should remain out of bed and keep on her feet as much as practicable. Sufficient vaginal examinations should be made to ascertain the progress of labor and there is little danger if done under strict aseptic conditions, but we have learned that unnecessary manipulations within the passages are to be avoided. The lower bowel and bladder should be evacuated. At the end of this stage the patient will have difficulty in walking and she will probably take to the bed.

Second Stage.—The patient, from the waist down, should be robed in a short skirt made from a sheet, with the opening made on the left side. The patient on the right edge of the bed and on her left side is all covered except her genitals, and a pillow between her knees in order to separate the limbs. The obstetrician should seat himself on the right edge of the bed just behind the patient, his left arm between the patient's legs, and the right arm around the buttocks, the right hand to watch the perineum, and the left hand to control the advance of the head of the child. While the foregoing is ideal it may need alteration according to circumstances. If the membranes have not ruptured, instrumental puncture should be made.

Obstetrical anesthesia should be administered especially during the latter part of the expulsive stage: slight at first during contractions, but pushed to the surgical degree during the acme of expulsion. Chloroform is preferred.

During this stage when extensive laceration of the vulvar outlet seems inevitable, episiotomy may be indicated; after delivery the incisions are sutured.

Third Stage.—As soon as the head is born and restitution occurs, the finger of the obstetrician is placed in the vulvar ring to see if the cord is free or about the neck of the child; remove cord if about the neck. The cord may be abnormally short and require cutting before complete birth of the child. On birth of the head the nurse should cleanse face and especially the eyes of the child with some mild antiseptic in order to prevent ophthalmia neonatorum. If the cord is normal its cutting should be delayed until the child is breathing freely in order that it may gain a few ounces of blood, but first of all make sure that respiratory movements are established. The cord should be ligated one inch and a half from the child, and cut about half an inch from the ligation on the maternal side. It may then be bent into a knuckle and again tied with the loose ends of the ligature, making the ligation doubly sure. The physician should make sure of the general condition of the mother, note pulse rate, lacerations, et cetera. If the circular artery of the cervix be lacerated it should be deeply ligated.

[TO BE CONTINUED.]

TRANSACTIONS.

WAYNE COUNTY MEDICAL SOCIETY.

STATED MEETING, MAY 3, 1900.

THE PRESIDENT, GEORGE A. KIRKER, M. D., IN THE CHAIR.

REPORTED BY WALTER J. CREE, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR WILLIAM A. HACKETT read a paper on "Complications of Specific Urethritis." (See page 541.)

DOCTOR ARONSTAM: I heartily agree with the essayist. I am inclined to regard gonorrhea as a systemic or constitutional disease, of greater or lesser severity. All the symptoms, which we observe at the outset of a gonorrhea as malaise, fever, temperature ranging between 101–103° Fahrenheit, anorexia and constipation are simply due to absorption of toxins from the local lesions, and still we are disinclined to call it a systemic affection. How do you explain the inflammation of the serous surfaces, following or accompanying a gonorrhea? Surely they are due to the toxic albumins absorbed! Then we must bear in mind, that there are cases of gonorrhea, which are never molested by any complication or sequela, whatsoever. These

I am inclined to call the nonspecific form of urethritis. It would not be out of place, to dwell somewhat on the differential diagnosis of specific and nonspecific urethritis. There is a vast field for investigation. The following differential diagnosis was described by me in a recently published article:

SPECIFIC.	NONSPECIFIC.
(1) Etiology: Gonococcus of Neisser.	(1) Etiology: other microbes, notably the trichonas vaginalis, foreign bodies, hyperacidity of urine, calculi, excessive venery, uric acid diathesis, excessive albuminous diet.
(2) Period of incubation two to seven days.	(2) No definite period of incubation.
(3) Of longer duration and apt to become chronic.	(3) Duration two to four weeks, does not tend to become chronic.
(4) Complication: especially if adenitis and orchitis are present.	(4) Usually no complications.
(5) Does not yield to treatment.	(5) Yields readily to treatment.
(6) The general condition of patient is more or less involved, that is, fever, malaise, et cetera.	(6) Seldom so.
(7) Predominating between the ages of twenty and thirty.	(7) May occur at any age.

I wish to call your attention also to the fact that many men may contract a urethritis from a woman who is virtuous, but suffers from some pathologic condition of the genital canal. Such a gonorrhea is termed a "nonmerited or nonspecific one." A gonorrhea in the man does not necessaaily mean a gonorrhea in the female. My experience is that in seventeen or eighteen per cent. of cases bubo is a complication, and in twenty-one per cent. of all cases constitutional disturbances were present.

DOCTOR T. J. PARKER: The great cause of unsuccessful treatment of cases of urethritis is because it is a hard matter to get complete control of the patient. We often see these cases after they have been treated by druggists or self-treated and they are hard to manage. The different stages should each be treated by appropriate means—quieting mixtures in the first stage and astringents later on. The secret of success to my mind is in having complete control of the patient.

DOCTOR L. E. MAIRE: The doctor referred to the law in regard to the regulation of marriage, which was brought up at the last session of the legislature, whereby people suffering with gonorrhea or who had been affected with the disease could not marry unless presenting a certificate from a physician stating that the person was in a healthy condition. The doctor also referred to a method to be used when in general practice of introducing a urethral speculum to locate small spots of inflammation, especially in cases of gleet, stating that when these spots were destroyed the gleet quickly disappeared. He had noticed in patients who were confined to bed with some other disease, that a gonorrhea developing would soon disappear and judging from this it would seem that rest is a very important factor in the treatment of the disease.

Doctor Donovan: I believe that many of the complications are the result of improper treatment. Medication should not be too strong and the attending physician should insist on cleanliness and rest.

DETROIT ACADEMY OF MEDICINE.

STATED MEETING, SEPTEMBER 11, 1900.

The President *pro tempore*, LEARTUS CONNOR, M. D., in the Chair.
Reported by HARRISON D. JENKS, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Harrison D. Jenks read a paper entitled "Some Points in Practical Midwifery." (See page 537.)

Doctor W. P. Manton: I heartily agree that the pregnant woman should come to us early. In regard to the breasts it is a mistake to use astringent lotions before confinement, as the epithelium becomes tanned and the moisture of nursing is more apt to cause erosion. Occasionally it may be desirable in very dry skins to use cold cocoa butter or cold pressed castor oil on the nipples. Forceps: In looking over my list of the last one hundred confinements that I have attended I found that I had used forceps in seventy-five per cent. of them; of course some of these were consultation cases. I believe it is a mistake to prolong suffering in the second stage after an hour without a good deal of damage to the soft parts. The method advocated for drying up the breasts is excellent, but sometimes it is unendurable, and the breast-pump has to be used. Since pressure is not sufficient alone to dry up all cases, I use iodide of potash, ten grains three times a day, and then apply belladonna ointment, or else a potassium iodide ointment. There must be a large latitude in treating these cases, for all cannot be handled alike. In regard to lacerations, often the levator ani muscle while not apparentdly torn, becomes overstretched and never again regains its tonicity.

Doctor A. D. Holmes: It seems to me that the percentage of cases with albumin is very large. I believe that forceps are used too frequently. When we have a slow rigid os, the use of Dover's powder or its equivalent will be satisfactory. I believe there should be more care in the use of forceps at the perineum. Perineal tears occur most frequently with the busy men who do not wait long enough, but put in forceps before the parts are stretched. We should not have hurried deliveries.

Doctor F. B. Tibbals: The paper has covered the gronnd so thoroughly that there is little to say. One thing I am thankful for is that I never have had a large obstetric practice. It is the most exacting branch with the least recompense of any we have. In most cases of short deficient nipples, with care the baby can be made to take hold and the nipple can be brought out. In using belladonna ointment some care must be exercised as I recall a case wherein the patient became delirious from the absorption of too much belladonna. I had always supposed that forceps were a protection to the perineum, that forceps can be used to stretch a perineum and so a tear may be avoided.

EDITORIAL ARTICLES.

THE MIÇHIGAN STATE MEDICAL SOCIETY.

ANY one who has of late kept in touch with local and state medical societies will have observed quite general disappointment and dissatisfaction with their methods and results. There has been felt a desire if not a need for a more direct and effective influence in all affairs in which we as a class are interested, for a larger cooperative membership and for a more widespread organization of the whole profession. The institution and control of local and state boards of health, of the Marine Hospital Service, of the Army Medical Department, of boards for the licensing of medical practice and for the appointment to the various other posts of medico-civic duty have brought to our notice the eminent desirability of the exercise by the great body of physicians of a more positive influence in these matters. It is not to be presumed that our voluntary organizations may or should usurp the authority and function of civil government to any extent, but as educating forces and in advisory capacities they are capable of great public good.

The varied comment which our State society has received from time to time and the propositions made at almost every annual meeting for its conduct have indicated the current of medical events in Michigan. The repeated efforts of the profession in New York and Ohio as well as other states to put their state organizations on a more fruitful basis also exhibit a realizing sense of their needs. The movement is already under way and general, having begun years ago. It is now more rapidly gaining momentum and now is a favorable time for action.

Our State Society is in no such unfortunate predicament as is the New York State organization or even as the local society in Detroit. It presents an harmonius blending of aims and energies. There are differences of opinion but no divided strength. The problem with us is therefore not one of conciliation but rather of greater efficiency along adopted lines.

In considering this subject it must be taken for granted in the first place that any proposition worthy of consideration must take cognizance of our annual meetings. No organization can exist long for its own sake. There must be some particular object in view and some direct advantage to be gained immediately and not in the distant future to give it life and vigor. The annual or regular meetings of the members together must be held in mind as the great center of attraction, and they should be made so benefical as to make their loss severely felt. Whatever in their management will contribute to bring about such results should be the constant study of those in particular who assume official responsibilities.

As means to this end it is worthy of remark that whatever will bring into these gatherings the best talents of the greatest number of its members will enhance their interest and widen their usefulness. The exhibition of satellites or visiting delegates from without the society will please temporarily but not permanently strengthen it. Active participation of many members is the *sine qua non* of real prosperity. The State Society is large enough to much more than consume the allotted time with the deliberations of its own members. Indeed instead of lessening the number of sections of a state society they should be increased. Give the members more opportunity for spending their own selves instead of damping their wished-for ardor. The *esprit de corps* should be especially cultivated. To this end the general sessions must be wisely managed. Not the good or the glory of any one but rather of the whole should be consulted. It is a lesson hard to learn that honor sought is vainglorious. In the wise and diligent performance of their duties the society's officers hold its welfare in their hands.

For all that the foregoing suggestions are worthy of carrying out it is not intended that the society's business should drag along or be protracted indefinitely. On the contrary let the meetings all be conducted with dispatch. Let the sessions begin promptly at the appointed time and adjourn when the work shall have been done or sooner if the allotted time be consumed. As sociabilities and festivities furnish to the majorityy the strongest and next best attractions reasonable allowance and provision should by all means be made for them and no other business of the society should be allowed to encroach upon them.

The idea has been broached several times that our State Society would do well to have a permanent location and one place of meeting, and Detroit has been suggested as most suitable. While it might be desirable to have permanent headquarters, and while Detroit can undoubtedly supply as many advantages for a large meeting as any other city in the State, the history of the society does not show that the best meetings have been held in Detroit. In fact some of the most generally profitable and most largely attended sessions have been held elsewhere. Were the State Society to meet successively in the same place that locality would be greatly benefited but to the detriment of more distant parts of the State. When the attendance upon our annual meetings shall have quadrupled or trebled then such suggestions will be practical, but, under the present conditions, the society does best on a circuit.

In order to enlarge the membership of the State society and thereby extend its usefulness and influence it has been proposed to adapt to Michigan the plan of the New York State Medical Association. That plan was the outcome of serious study to find a way of reorganizing a large and divided profession. The end is not yet, but even though it may succeed in New York it does not follow that so complicated and so costly a scheme is either necessary or even suited to our own State. Rather than pursue our present methods or at the other extreme adopt the New York plan would it not be wiser to look at our defects and attempt to correct them? Instead of voting out reputable members who cannot conveniently attend the annual meetings and who do not therefore choose to pay for something they do not receive, cannot some just compromise be arrived at? Under the present plan of issuing the Transactions to members whose fees are paid in full the admission and regular fees to those who attend offer no hindrance. But to require the same dues of those who for reason do not attend or receive benefit is surely not conducive to the growth of a voluntary organization. Under such circumstances would not all worthy considerations be satisfied by allowing to non-attending members the alternative of one dollar dues without the Transactions or three dollar dues with them? To the mind of some the difference is small but the principle of justice is conserved notwithstanding. This idea has already been presented for consideration and action has been too long delayed. By making slight concessions many physicians once voted into the society may be retained instead of lost.

The society as a whole has never taken any aggressive stand in the matter of State organization. Now and then a new officer or a member has spasmodically advocated the desirability of membership before the physicians within his reach but no great accessions have been received. It is well understood that the building up of a large voluntary organization is accomplished only at the expense of constant and well directed pains, and yet our society has never made provision for this purpose. A simple and yet effective plan consists in the institution of an appointive committee on State organization. Let them become responsible to the society for the organization of counties individually and for the reception into the State organization of all reputable physicians residing therein. Whether the benefits of the society are worth having or not unless it becomes the business of some one or some few persons to make them known the society will not grow.

ANNOTATIONS.

THE PROPHYLAXIS OF OPHTHALMIA NEONATORUM.

It has been estimated that of the more than fifty thousand blind persons in this country in 1890 nearly a third suffered this disaster from ophthalmia neonatorum. In Great Britain, France and Germany the percentage is fully as large or larger. Although evidence is not conclusive regarding the gonococcus as the sole factor in causing the disease yet the assumption that the infection pertains to the vaginal passage is not disputed. The conjunctiva may be infected during labor, but the results of CREDE's methods of treatment, especially in Leipsic, would indicate that the causative agent is admitted after birth. In other words ophthalmia neonatorum is almost always a preventable disease. The lamentable condition in which it usually leaves the patient should arouse the physician's utmost efforts in his behalf, and the dependence of such persons upon the community might well be construed into certain penal exactions. In private practice it has not been found necessary or even wise to follow out as a routine practice the instillation of two per cent. nitrate of silver immediately after birth, since the solution if strong enough to do any good, will itself produce an acute conjunctivitis in many instances. In hospital practice, however, that precaution would be more wisely carried out. What the physician should do would be to assume all responsibility in these cases, and after himself or a trained nurse has carefully cleansed the face and eyes with a sterile or nonirritating antiseptic solution, watch these patients with an ever ready competency to meet all indications should any arise.

THE HALL OF FAME.

The names of the twenty-nine immortals, selected to be placed in the Hall of Fame, have been widely published, but the public has not been comparably as well informed about the one hundred judges who made the selection. Not but that every name chosen deserves to be inscribed in the hall, since the entire list has met the approval of the New York University and of public opinion generally, but it is certain that the character of the judges determined the final result by the order of selection. Criticism as well as wonderment and disappointment have been expressed that no physician's name appears in the list, and the mistaken inference may be in the minds of some that none were eligible. Of course the conditions imposed that votes should be cast for only those who were born in America and had been dead at least ten years influenced the result. No one could, however, question the propriety of those conditions. Some ground of criticism is had in the fact that it had been originally assumed that fifty would be chosen, since it is supposable that had it been understood beforehand that only tweuty-nine would be selected the result might have been different. With that understanding Benjamin Rush might have been counted more worthy of mention. As it was he received forty-two votes. One of the judges, himself not a physician, who has stated that he voted for twenty-four out of the twenty-nine, has ascribed this to him: "From all points of view, as physician, statesman, citizen, and patriot, in our opinion Rush deserves a place in the first fifty, and we should have voted for him in the first twenty, if that had been the number." As the twenty vacant panels will be filled in 1902 it is very likely that what may have been regarded as contingencies in the first vote will be righted at that time.

THE RESIGNATION OF DOCTOR BAKER.

After a most honorable and highly successful career as a dignified non-political body the Michigan State Board of Health presents to the public gaze the appearance of being greedy for spoils. At the evening session of a meeting of the board held October 12, 1900, the following resolution offered by Judge McAlvay, of Manistee, was adopted:

Resolved, That the Secretary of this Board, Henry B. Baker, be and is hereby requested to tender to this Board his resignation as such Secretary, to take effect January 1, 1901, and that such resignation be placed by him in the hands of the President of this Board on or before November 10, 1900, and that the President is hereby directed on said last mentioned date to notify each member of this Board whether such resignation has been received by him.

In his reply declining to comply with this resolution DOCTOR BAKER makes public the fact that no reason for that action was given but that the resolution was presented at the unanimous request of all the members of the Board attending the meeting, except HONORABLE FRANK WELLS, the President of the Board. PROFESSOR DELOS FALL was not present.

On account of the long service of DOCTOR BAKER in connection with Michigan public health work the medical profession in this State and sanitarians everywhere have come to hold personal relations with him and become perhaps as familiar with his work as some of the members of the present board, and in the absence of specific charges feel loath to believe that public interests demand such a change at this time. The membership upon the Board in years past of men whose memory is most revered and the efficiency of the Board from its institution until now confirm that belief. **The Physician and Surgeon** has no particular interest in DOCTOR BAKER as an individual but it is interested, for the sake of the public welfare, to know that no private affairs are being consulted. Justifiable reasons for that action are awaited.

RECENT PUBLICATIONS.

REVIEWS.

PRACTICE OF MEDICINE.*

THE preceding volumes of this series have raised a high standard of excellence for those to come. This manual, containing the essentials of internal medicine, is fully up to the mark of expectation. For so concise a work it is remarkably comprehensive.

*By George E. Malsbary, M. D., Assistant to the Chair of Theory and Practice of Medicine in the Medical College of Ohio, Cincinnati. In one 12mo volume of 405 pages, with 45 illustrations. Cloth, $1.75 net. Lea Brothers & Company, Philadelphia and New York.

PATHOLOGY AND SURGICAL TREATMENT OF TUMORS.*

THE author of this pretentious work has again placed English reading physicians under great obligations. Although his later writings have been subjected to comparison rather more than his earliest great work they have deserved and received the greatest consideration. Their authorship alone insure their merit and command appreciation. It is with a sense of these facts that reference is made to this particular work. In its general character the second edition follows the first. The author has seen fit, however, to make some changes in both text and illustrations, and some additions. It is a most commendable work.

*By N. Senn, M. D., Ph. D., L. L. D., Professor of Surgery in Rush Medical College, et cetera. W. B. Saunders & Company, Philadelphia, 1900.

HANDBOOK OF MATERIA MEDICA FOR TRAINED NURSES.*

THIS work differs little from other abridged texts on materia medica except in the appending of questions at the end of each chapter and explanatory footnotes. As a textbook for nurses it is well suited.

* By John E. Groff, Ph. G., apothecary in the Rhode Island Hospital, Providence. P. Blakiston's Son & Company, Philadelphia.

MANUAL OF BACTERIOLOGY.*

THIS is a compilation intended more especially for laboratory workers, although it is a brief review of the most prominent and important facts in bacteriology, and as such will be useful to the general reader as well.

*By Herbert U. Williams, M. D., Professor of Pathology and Bacteriology in the Medical Department of the University of Buffalo. With seventy-eight illustrations. P. Blakiston's Son & Company, Philadelphia.

QUIZ COMPEND OF PHYSIOLOGY.*

THIS book is well known to students of medicine, and through them to the profession. That it has filled a want is attested by the eight editions through which it has already passed.

*By Albert P. Brubaker, A. M., M. D., Adjunct Professor of Physiology and Hygiene in the Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Anatomy and Physiology in the Drexel Institute of Art, Science and Industry; Fellow of the College of Physicians of Philadelphia. Ninth edition, revised and enlarged. With new illustrations and a table of physiologic contents. P. Blakiston's Son & Company, Philadelphia.

INTERNATIONAL CLINICS.*

THE publishers of this series of clinical lectures have wisely selected a list of more practical topics, a change sure to be appreciated by their many readers. This volume opens with four able papers on disease in the Phillipines and camp sanitation. Four articles are devoted to therapeutics, four to internal medicine, one to paresis, three to general surgery, three to obstetrics and gynecology, one to pathology and two to eye and ear subjects. In addition to these, each of which deserves individual mention, Henry W. Cattell, M. D., and N. J. Blackwood, M. D., have contributed in condensed form a little more than one hundred pages of medical progress during the year. This is one of the most valuable numbers of the series.

*By leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A. M., M. D., Philadelphia, with the collaboration of John Ashhurst, Junior, M. D., LL. D., and Charles H. Reed, M. D., of Philadelphia, James T. Whittaker, M. D., LL. D., of Cincinnati, with correspondents in Montreal, London, Paris, Leipsic, and Vienna. Volume I, Tenth Series, 1900. J. B. Lippincott Company, Philadelphia.

MANUAL OF THE PRACTICE OF MEDICINE.*

THE author calls this volume a manual, but like a few others it might better be denominated a compend without the quiz. It covers the subject in its own way, but the use of exclamatory phrases for predicating sentences does not accord with our ideas of the best forms.

* By A. A. Stevens, A. M., M. D., Professor of Pathology in the Woman's Medical College of Pennsylvania, et cetera. Fifth edition, revised and enlarged. Illustrated. W. B. Saunders, Philadelphia.

ESSENTIALS OF ANATOMY.*

PERHAPS no subject in the whole range of medical study is better adapted for the question compend than that of anatomy, and this handy little volume fully meets the desired intent. The exhausting of five editions is no small indication of merit.

* By Charles B. Nancrede, M. D., Professor of Surgery and Clinical Surgery in the University of Michigan. Sixth edition, thoroughly revised, by Fred J. Brockway, M. D., Assistant Demonstrator of Anatomy, Columbia University, New York. W. B. Saunders, Philadelphia.

GYNECOLOGY.*

HERE again we are constrained to remark the fine conception of this series of books. Besides being up-to-date they present the several branches of medicine in as brief and yet more desirable form than quiz compends for the use of students. As a handy review they are adapted to the regular practitioner's use also. This volume is a faithful, short, and comprehensive text of gynecology.

*By Montgomery A. Crockett, M. D., Adjunct Professor of Obstetrics and Clinical Gynecology in the Medical Department of the University of Buffalo; Attending Gynecologist to the Buffalo General and Erie County Hospitals. Series edited by Bern B. Gallaudet, M. D., New York. Lea Brothers & Company, Philadelphia and New York.

THE ANATOMY OF THE BRAIN.*

THIS is a brief monograph on the gross anatomy of the brain. The subject is considered under the following four heads: The Divisions of the Encephalon; The Surface Anatomy of the Encephalon; The Internal Anatomy of the Encephalon; The Conducting Paths of the Encephalon. The subject matter shows the imprint of the newer thought, and yet is free of controversial points. The text has been carefully prepared, and the illustrations constitute a valuable part of the work.

*By Richard H. Whitehead, M. D., Professor of Anatomy in the University of North Carolina. Illustrated with forty-one engravings. 6¼ x 9½ inches. Pages, v–96. Extra Vellum Cloth, $1.00, net. The F. A. Davis Company, Publishers, 1914–16 Cherry Street, Philadelphia, Pennsylvania.

HELD AT
MACKINAC ISLAND, MICHIGAN,
JULY 10, 1900.

BEAUMONT MEMORIAL EXERCISES.

PROGRAM:
- *PRESENTATION OF SITE.*
- *BEAUMONT—ARMY-SURGEON.*
- *BEAUMONT—PRACTITIONER.*
- *BEAUMONT—CITIZEN.*

DOCTOR WILLIAM BEAUMONT,
SURGEON IN THE UNITED STATES ARMY.

The Physician and Surgeon

A PROFESSIONAL MEDICAL JOURNAL.

VOLUME XXII. DECEMBER, 1900. NUMBER XII.

ORIGINAL CONTRIBUTIONS.

ADDRESSES.

PRESENTATION OF SITE FOR MONUMENT.*

BY JOHN READ BAILEY, M. D., MACKINAC ISLAND, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

MR. PRESIDENT AND MEMBERS OF THE UPPER PENINSULA MEDICAL SOCIETY—LADIES AND GENTLEMEN:

MR. PRESIDENT: In every program there is a chain whose links are apt to be broken. Some of the links of your chain have been sundered. The shepherd† of the flock is in other pastures looking up the lost sheep, and his place has been ably filled by another leader.

The worthy and distinguished president of the park is missing, and has probably gone to repair his *Snow-shoe Club*, or is stranded on the lake shore between Detroit or Saginaw and Marquette, with his *Courier de Bois* waiting for a fall of snow that will enable him to get through with the other *mails* on his *cannon-ball train au glace.* The other members of the commission may be in the Philippines, or Pekin, China, with the missionaries who cannot get away.

In the dilemma we are requested by MR. POOLE, Superintendent of the Park for the Mackinac Island State Park Commission, to present to the Upper Peninsula Medical Society, the plat of ground east of the old stone quarters in the Fort, or any other place that may now, or hereafter be selected, in the monument park grounds, in front of Fort Mackinac, as a site for a memorial to WILLIAM BEAUMONT.

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* Made at Mackinac Island, Michigan, on the afternoon of July 10, 1900.

† RIGHT REVEREND G. MOTT WILLIAMS, D.D., LL.D., Bishop of Marquette.

BEAUMONT—ARMY-SURGEON.*

By JOHN READ BAILEY, M. D., Mackinac Island, Michigan.
FORMERLY POST-SURGEON AT FORT MACKINAC.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

This distinguished citizen came to life in Lebanon, New London county, Connecticut, November 21, 1785. Born an investigator, his first experience appears to have been the ingestion and digestion of a lacteal secretion derived from his maternal parent. We are led to believe his early experiments, conducted a year or more in that line, though not recorded, were entirely successful and satisfactory, as he appears to have thriven on the aliment provided in those days for children. In that era the artificial method of rearing infants, under the care of a French nurse, with a glass feeding bottle, rubber tube and nipple attached, associated with the festive microbe, had not been invented. Then the costly sterilizer and peptonized foods were not required, for nearly every couple obeyed the recorded divine law: "Be fruitful, and multiply, and replenish the earth." He must have thriven, for he grew to manhood in due physicial proportions, and taught school in Champlain, Clinton county, New York in 1806, and subsequently, under Doctor Benjamin Chandler, imbibed a medical education at Saint Albans, Vermont.

He was appointed surgeon's mate of the Sixteenth Infantry from Connecticut, December 2, 1812, transferred to the Sixth Infantry, January, 1813, and appears to have been in the Eighth Infantry in 1814, for a time. He served through the war of 1812–15, in the engagement at Little York and the expedition to Niagara with distinction, and was in the battle of Plattsburgh, New York, in 1814. He was retained in the reduction of the army in 1815 but resigned June 3, 1815.

Hospital Surgeon, James Mann, Medical Director at Plattsburgh, New York, reported in November, 1814, to Physician and Surgeon-General James Tilton: "In events of high importance it is seldom the Medical Staff is mentioned. * * * * This, however, is not always the case. During the investment of Plattsburgh by the enemy the surgeons were constantly passing from fort to fort or to blockhouses to dress the wounded, exposed to a cross fire of round and grape shot, while the greater part of the army was covered by fortifications. The cool bravery of the surgeons was noticed by the commander-in-chief; had half as much been reported to the war department respecting them, they would have felt themselves amply compensated. * * * * If any officer had hardships attached to his office, it was the surgeon, who executed his office with fidelity and assiduity. I feel myself bound to report, with much respect, the conduct of all the medical gentlemen attached to this army, who at all times during the campaign performed their duty, and who for their particular services during and after the investment of Plattsburgh by the enemy, merit the applause of their country. To discriminate would be an act of injustice. Doctors Lawson and Mason, surgeons of regiments, Wormley, Beaumont and Hugo, surgeons' mates, have all deserved well of their government." * * * *

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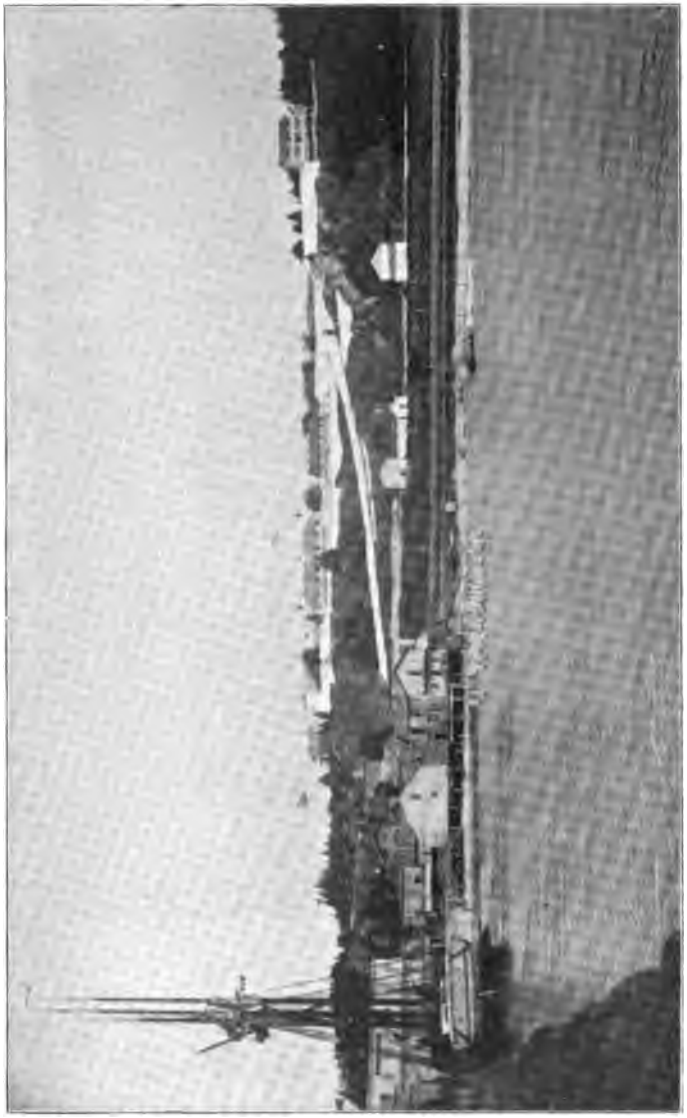
*Read at a conjoint meeting of the Michigan State Medical Society and the Upper Peninsula (Michigan) Medical Society, held at Mackinac Island, Michigan, July 10, 1900.

Doctor Beaumont reentered the army as post surgeon, November 4, 1819, and was retained as assistant surgeon in the reorganization of the corps, March 2, 1821. That year he married Miss Debora Platt, of Plattsburgh, New York. He was promoted surgeon, November 26, 1827. After reflecting great credit on the medical corps of the army by his scientific investigations he again resigned to take effect December 31, 1839. Several years previously he had removed to Saint Louis, Missouri, where he practiced his profession until the time of his death, April 25, 1853. There is a hospital and



FORT MACKINAC, MICHIGAN.

WHERE WILLIAM BEAUMONT, SURGEON UNITED STATES ARMY, WAS STATIONED FROM 1821 TO 1825.

a medical college in the city of Saint Louis, dedicated to his memory; what momument can be more lasting?

Part of the time from 1815 to 1819, after he first left the service, he was in Maryland, and there made valuable contributions to the sciences of botany and geology.

In 1839, SURGEON BEAUMONT was president of a board that convened at Tampa, Florida, with SURGEONS CRAIG and WOOD, and STEINECKE as supernumerary, to examine medical officers of the United States Army for promotion. WILLIAM BEAUMONT, then a post surgeon, was, in 1821, ordered to Fort Mackinac, Island of Michilimackinac, Michigan Territory, and was assigned in charge of the medical department of this station. Here he remained until 1825, when he was ordered to report for duty at Fort Niagara, New York, and was relieved by RICHARD S. SATTERLEE, Assistant Surgeon United States Army.

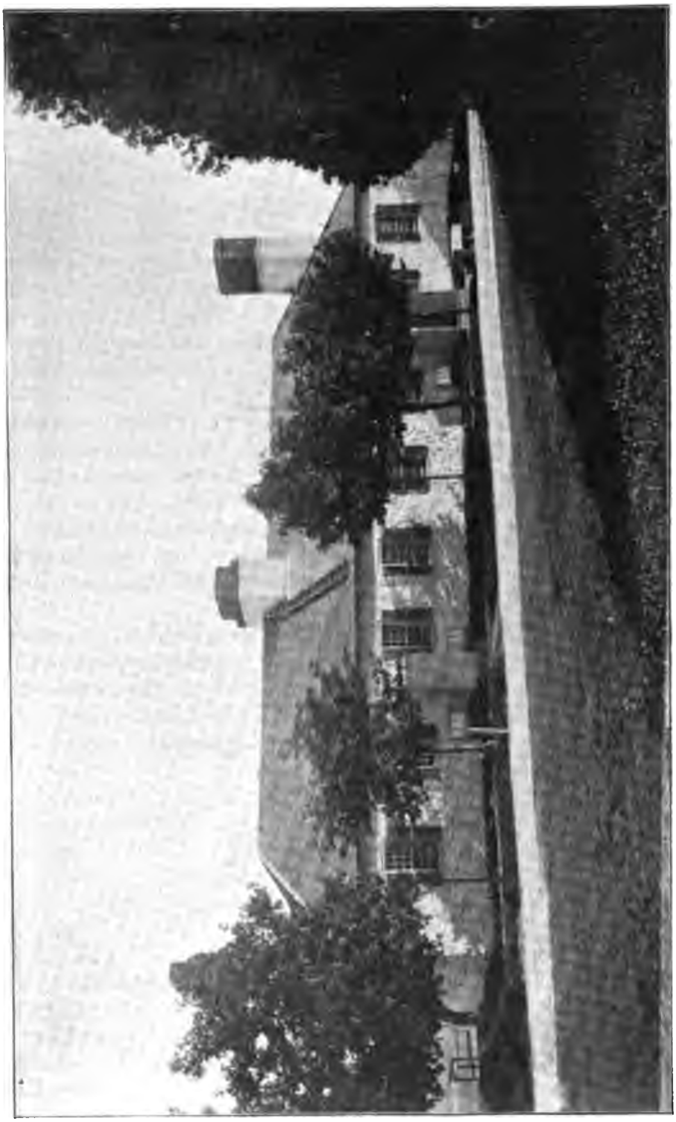
When SURGEON BEAUMONT was stationed here, and for many years after, the army regulations were framed to allow medical officers a sort of simulative rank, or undefined status, compared with commissioned officers in the line of the army. For that reason the surgeons' quarters were assigned and not subject to selection for rank. DOCTOR BEAUMONT occupied the east end, and the commanding officers the west half, of the stone building, Fort Mackinac, commenced by the British in 1780 and completed some years after. The Post Hospital was the small one-story frame building at the west end of the parade ground, and east of the west blockhouse. There was only one ward, for from four to six beds, an office and a dispensary.

From 1821 to 1857, Fort Mackinac was all within the inner intersecting lines of the three blockhouses and the slope in front very much as it is now; there were no buildings without the lines. The only approaches were through the south and north arched sally ports, each provided with a portcullis, that could be instantly dropped. They were both additionally secured by gates, double planked, that could be closed at any time during the night or day. Strong, squared, cedar palisades (pickets) were set vertically on the walls and in the ground intersecting the inner lines of the blockhouses. They were about ten feet high, pointed at the top, pierced at intervals, by two rows of loopholes (one-half on two adjoining pickets) for musketry, angled from within outwards so that the fire could be delivered, standing or kneeling, at the enemy in any direction. Near the blockhouses strong, three-pronged, sharp, iron spikes, were set in the apices of the pickets and like spikes and pointed hooks wherever the ground approaches seemed to favor scaling parties. The blockhouses were armed with iron carronades that were captured by COMMODORE PERRY in his famous battle on Lake Erie. These and a number of larger cannon, mounted on the gun platforms and bastions, were placed to rake an approach from any direction. Among these were two six-pounder brass pieces, captured by the British colonists from the French, at Hudson's Bay, before the War of the Revolution; and other guns marked: "Taken at Sara(to)go;" "Taken from LORD CORNWALLIS," et cetera.

At that time the village was small and compact. The houses were one-story log structures roofed with bark, except the two-story

(Doctor Mitchell) residence with mansard roof then standing on Market street. All the building lots, gardens and the government inclosure were fenced, for protection, by high cedar pickets firmly set in the ground, that gave the town a weird and foreign aspect. Many stumps of pickets can be traced, on dividing lines, to this day, and some shortened ones are still standing. The village had a population of about five hundred, mostly Canadian French and mixed Indian blood, whose chief occupation was fishing in summer and

WEST.



EAST.

SURGEON BEAUMONT'S QUARTERS, FORT MACKINAC.

hunting in winter. There were not more than twelve white women on the island, the residue of the female population being either all or part Indian. Here during the summer months congregated the traders employed by the Fur Company, bringing their collections from their several trading posts, which extended from the British dominions on the north and the Missouri river in the west, south and east to the white settlements; in fact, to all the Indian hunting grounds, so that when all were collected they added three thousand or more to the population.

"The Indians from the shores of the upper lakes, who made this island a place of resort, numbered from two to three thousand more. Their wigwams lined the entire beach two or three rows deep, and with the tents of the traders made the island a scene of life and animation. The voyageurs were fond of fun and frolic, and the Indians indulged in their love of liquor, and, by the exhibition of their war, medicine, and other dances and sports, often made both night and day hideous with their yells. These voyageurs were all Canadian French, and were the only people fitted for the life they were compelled to endure; their cheerful temperament and happy disposition made them contented under the privations and hardships incident to their calling."

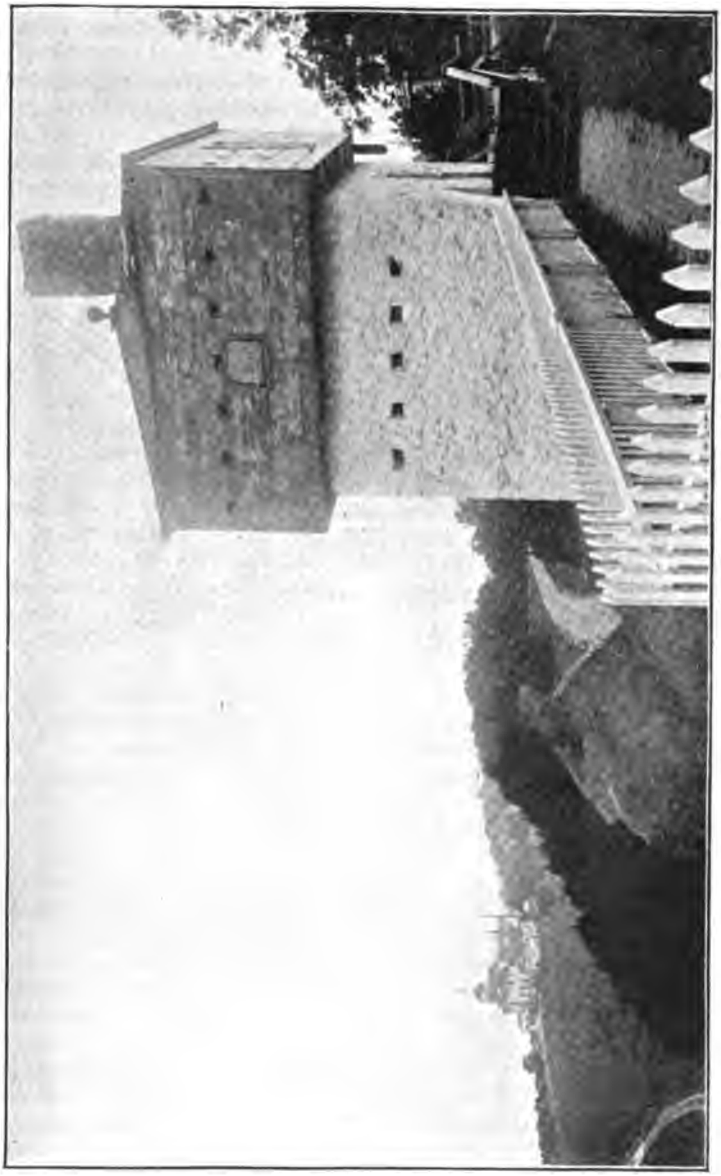
Yearly, in July, when the "outfits" of the various outposts had returned, the furs were unpacked, counted, assorted, appraised, the profit and loss of each ascertained, then repacked, pressed and stored in the company's large warehouse ready for shipment to Mr. Astor in New York. The furs, or pelts taken, were marten (sable), mink, otter, beaver, black, silver grey, and common fox, deer, moose, elk, bear, buffalo, wolverine, badger, lynx, raccoon, wild cat, muskrat, and all small fur animals.

"The force of the company when all were assembled on the island comprised about four hundred clerks and traders, together with some two thousand voyageurs. About five hundred of these were quartered in barracks, one hundred lived in the agency house [now the John Jacob Astor House], and the others were camped in tents aud accommodated in rooms of the islanders.

"Dances and parties were given every night by the residents of the island in honor of the traders, and they, in their turn, reciprocated with balls and jollifications, which, though not as elegant and costly as those of the present day, were sufficiently so to drain from the participants all the hard earnings of the winter previous."

Each "brigade" had a stout fellow, the "bully" of that crew of voyageurs, who "wore a white feather in his cap," and, if he was worsted, good naturedly gave the feather to the conqueror.

Batteaux used by the "brigades"(in addition to canoes) resembled the Mackinac fishing boats of the present day, but were larger, with a capacity for about three tons of merchandise, and the clothing and rations of the men. Each batteau had a crew of a clerk and five men. One man steered and four propelled the craft with oars. The daily rations of a mess of from six to ten men was, to each man, one pint of hulled or lyed corn and from two to four ounces of tallow. It was more than they could eat, better than bread and meat, and was generally liked. On Saturday flour was issued for Sunday pancakes. The voyageurs were not provided with shelter and their luggage was restricted to twenty pounds, carried in a bag. The commander of the "brigade" selected the best boat and an extra man for "orderly," "and the will of the commander was the only law known." The clerks messed with the commander and orderly. They had salt pork, tea and coffee, and a tent for shelter.



WEST BLOCKHOUSE, FORT MACKINAC, BUILT BY THE BRITISH, IN THE YEAR OF OUR LORD 1780.

The company had mechanics who made and repaired boats and manufactured traps, tomahawks, nails, and other articles from iron. The capital of the Fur Company was immense, and their policy was to monopolize; fully nineteen-twentieths of traders of the northwest were engaged by them.

This cut shows the general appearance of the palisades, and one of three blockhouses of Fort Mackinac, as they were from 1780 to about 1857.

When Doctor Beaumont was stationed at Michilimackinac Island, Michigan Territory, the following case of surgery came under his care and treatment:

Alexis Saint Martin, a youth of French Canadian descent about eighteen years of age, who was engaged as a voyageur in the service of the American Fur Company, of which John Jacob Astor, of New York, was the principal owner and partner, with Ramsey Crooks and David Stuart local managers, accidently received a discharge from a flintlock gun, on the 6th day of June, 1822.

BLOCKHOUSE ERECTED IN 1780.

Gurdeon S. Hubbard, of Chicago, who died September 14, 1886, and who had been employed as a clerk and trader, by the Company, told me he was present when Saint Martin was shot. He said:

"The late Major John H. Kinzie had charge of the American Fur Company's retail store at Michilimackinac. I was in the habit of assisting him occasionally, when a press of customers needed extra clerks. The store composed the ground floor near the foot of the fort hill, on the corner of the street and the road leading up to the fort. The rear part of the store, which was under ground, was built of stone that is still standing as the basement of a dwelling.

"Saint Martin was at the time, with a number of engagees in the store. One of the party was holding a shotgun (not a musket) which was accidentally discharged, the whole charge entering SAINT MARTIN'S body. The muzzle was not over three feet from him—I think not more than two. The wadding entered as well as pieces of his clothing; his shirt took fire; he fell as we supposed, dead.

"DOCTOR BEAUMONT, the surgeon of the fort, was immediately sent for and reached the wounded man in a very short time, probably three minutes. We had just gotten him on a cot and were taking off some of his clothing. After the doctor had extracted part of the shot, together with pieces of clothing, and dressed his wound carefully, ROBERT STUART and others assisting, he left him, remarking: 'The man cannot live thirty-six hours; I will come and see him by and by.' In two or three hours he visited him again, expressing surprise at finding him doing better than he had anticipated. The next day, after getting out more shot and clothing and cutting off ragged edges of the wound, he informed MR. STUART, in my presence, that he thought he would recover."

MR. HUBBARD further related:

"I knew DOCTOR BEAUMONT very well. The experiment of introducing food into the stomach through the orifice purposely kept open and healed with that object, was conceived by the doctor very soon after the first examination."

BEAUMONT wrote: SAINT MARTIN was accidentally wounded by the discharge of a musket on the 6th day of June, 1822. The charge, consisting of powder and duck shot, was received in the left side of the youth, he being at a distance of not more than one yard from the muzzle of the gun. The contents entered posteriorly, in an oblique direction, forward and inward, literally blowing off integument and muscles the size of a man's hand, fracturing and carrying away the anterior half of the sixth rib, fracturing the fifth, lacerating the lower portion of the left lobe of the lung, the diaphragm, and perforating the stomach. The whole mass of materials forced from the musket, together with the fragments of clothing and pieces of fractured ribs, were driven into the muscles and cavity of the chest. I saw him twenty-five or thirty minutes after the accident occurred, and, on examination, found a portion of the lung as large as a turkey's egg, lacerated and burnt, protruding through the external wound and immediately below this, another protrusion, which, on further examination, proved to be a portion of the stomach, lacerated through all its coats, and pouring out the food he had taken for his breakfast through an orifice large enough to admit the forefinger. * * * * * The projecting portions of the stomach were nearly as large as that of the lung. It passed through the lacerated diaphragm and external wound, mingling the food with the external mucus blown from the lungs."

The wound was cleared of the charge and extraneous matter, and the stomach and lung replaced and held intact by a compress and bandages. It is not necessary, here, to state the outlines of treatment. One year after the accident the injured parts were all sound and firmly cicatrized, with the exception of the aperture in the stomach and side, and a valvular formation had adapted itself to the orifice.

Here are three photographs of the original wood cuts. The first shows the stomach prolapsed through the aperture; the second represents the ordinary appearance; the third represents the appearance of the aperture with the valve depressed:

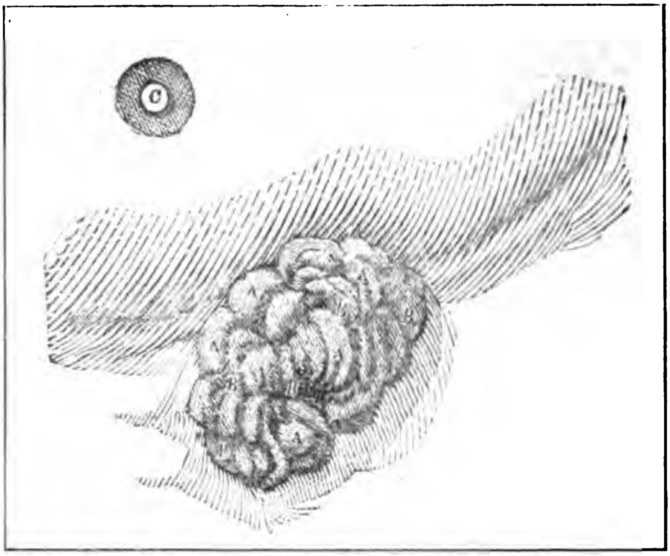


FIGURE I.

THIS ENGRAVING REPRESENTS A PORTION OF THE STOMACH PROLAPSED THROUGH THE APERTURE, WITH THE INNER SURFACE INVERTED AND SPREAD OUT OVER THE INTEGUMENTS.

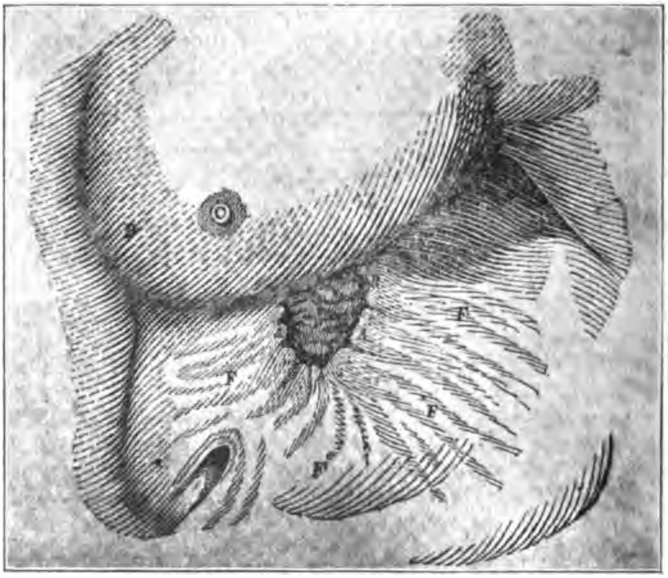


FIGURE II.

THIS ENGRAVING REPRESENTS THE ORDINARY APPEARANCE.

Beaumont's experiments were made at intervals, from 1825 to 1833, the first series at Fort Mackinac, Michigan Territory, in May, 1825, continuing through June and August at Fort Niagara, New York, where the doctor had been ordered.. About this time he took the man to Burlington, Vermont, and from thence to Plattsburgh, New York, where **Saint Martin** took French leave of him, and went to his native place in Canada, where for about four years, he was engaged as a voyageur by the Hudson Bay Fur Company. He was afterwards traced, through agents of the American Fur Company, who annually visited Canada for men, and they engaged him for **Beaumont**. They transported him, with a wife and two children, from Lower Canada to **Doctor Beaumont** at Fort Crawford, Prairie du Chien, on the Mississippi, nearly two thousand miles, where he arrived in August, 1829 He was in good health, and the aperture in the stomach and side the same as when he left in 1825. Then the second series of experiments began, and were continued interruptedly until March, 1831. During all this time he performed all the duties of a common servant, chopped wood and carried burdens, with little or no inconvenience from his wound, and became the father of more children.

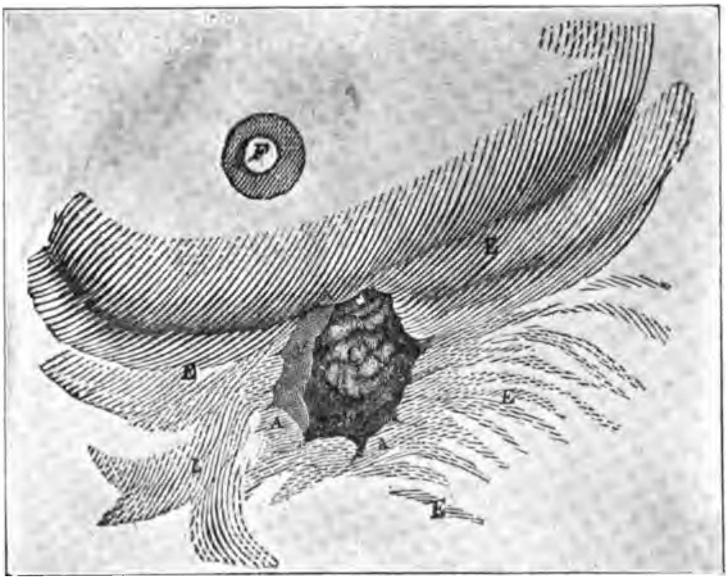


FIGURE III.

THIS ENGRAVING REPRESENTS THE APPEARNCE OF THE APERTURE WITH THE VALVE DEPRESSED.

In the spring of 1831 he left Fort Crawford with his family for Lower Canada, but promised to return when required. His voyage was in open canoe down the Mississippi, past Saint Louis, to the mouth of the Ohio, up that river to its head, and across the state to the lakes, down Lakes Erie and Ontario and the Saint Lawrence river to Montreal, where he arrived, after six or eight weeks, in June.

In November, 1832, he again joined **Beaumont** at Plattsburgh, New York, and travelled with him to Washington, District of Columbia. There experiments were continued until March, 1833.

DOCTOR JOHN READ BAILEY,
LATE POST-SURGEON AND OCCUPANT OF THE BEAUMONT
QUARTERS, AT FORT MACKINAC; PRACTITIONER
AT MACKINAC ISLAND SINCE 1854.

There were about two hundred and forty experiments in the four series, besides the observations and microscopic examinations. **Beaumont** constructed a diet table that is quoted as authority to this day, and drew a number of observations as the result of his work. The whole was published in a book entitled "Experiments and Observations on the Gastric Juice, and the Physiology of Digestion, by **William Beaumont**, M. D., Surgeon in the United States Army, Plattsburgh. Printed by F. P. Allen, 1833." I had extended notes of these observations, but shall, with pleasure, leave the scientific deductions to another gentleman.

MACKINAC ISLAND, MICHIGAN.

* * *

BEAUMONT—PRACTITIONER [*]

By FRANK J. LUTZ, A. M., M. D., SAINT LOUIS, MISSOURI.
DEAN AND PROFESSOR OF SURGERY IN THE BEAUMONT HOSPITAL MEDICAL COLLEGE

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

When Beaumont was ordered in 1834 by Surgeon-General **Lovell** to report at Jefferson Barracks, then as now a military post situated about fourteen miles south of Saint Louis, his "Experiments and Observations on the Gastric Juice, and the Physiology of Digestion" had been published in Plattsburgh, New York, in the previous year —1833. In 1835 he was transferred to the Saint Louis Arsenal, of which he was the medical officer, and there was also entrusted to him the medical purveyorship of the western military district. His appointment permitted him to engage in practice in civil life. He very soon occupied a conspicuous place in the ranks of the local profession, for, as his biographer and friend, **Doctor Thomas Reyburn**, says, "His mature age and ripe experience, the reputation he had acquired in the army, and by the publication of his work on the gastric juice, together with the fact that society was in a large part composed of military and their families, tended, no doubt, to give him that preeminence in the profession which few could contest with him on the score of superiority in skill, age or experience."

About 1840 he resigned his commission in the army because, despite his remonstrance with the department, in which he pleaded advanced age and length of service, and urged that it was contrary to the usual regulations, the order of Surgeon-General **Lawson** transferring him to New Orleans was insisted upon.

From 1841 to 1849 he resided a short distance from the city on a forty acre tract. This tract is now occupied in part by the "Mary Institute," a department of Washington University for the education of girls, and is located in a most densely pupulated district of our metropolis. Its western boundary, Beaumont street, was named for the great experimenter.

As was to be expected of one so devoted to the science of medicine, and to the medical profession, he took an active interest in the proceedings of the Missouri Medical Society, the predecessor of the Saint Louis Medical Society. In 1838 he was chosen its vice-president and in 1841 its presiding officer.

Nor were his confreres and the board of trustees of the first medical department which was organized west of the Mississippi in 1837, the medical department of the Saint Louis University, oblivious to his talents and his ability as a teacher, but gave expression to their confidence in him by offering him the chair of surgery. He declined the proffered chair, however, urging as his reasons his official connection with the army, the uncertainty of his residence in Saint Louis and the doubt of, as well as the necessity for obtaining the sanction of the war department, whose subject he was. The persuasion of friends, civil and military, together with the urgent request of the board of trustees, induced him to accept reluctantly on condition of being permitted to resign at any time should the heads of the department at Washington disapprove of the step.

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[*] Read at a conjoint meeting of the **Michigan State Medical Society** and the **Upper Peninsula** (Michigan) **Medical Society**, held at Mackinac Island, Michigan, July 10, 1900.

His lines seem to have fallen in pleasant places in Saint Louis, for as early as 1837 he wrote to a friend at Washington: "I have no wish or intention of resigning my appointment in the army at present, though the professional encouragement I meet with here might seem sufficient inducement to do so, were avarice or professional fame the motives of my ambition. I have a very handsome, lucrative and respectable private practice, reputation far above my merits, and professional popularity more than commensurate with my best practical skill or abilities."

Notwithstanding the high esteem in which BEAUMONT was held by the community as well as by his professional brethren, or perhaps, I should say, because of the eminent position which he occupied, he was not spared the annoyance, chagrin and unenviable notoriety which follow in the wake of a malpractice suit. The case in which BEAUMONT was involved became a "cause celebre" in local history, commonly known as the "MARY DUGAN" case.

It appears from the record that MARY DUGAN, a poor, unfortunate woman, fifty-five years of age, was afflicted with an enlargement in the right inguinal region, with tension and distension of the abdomen —the swelling fluctuated; a puncture was made by DOCTOR ADREON, the codefendant of BEAUMONT, a quantity of "well digested pus was discharged" and "some fetid gas emitted." In the evening some fecal matter passed through the openings in the groin, together with thin sanies and fetid gas. In a few days "the abscess degenerated into a foul, ill-conditioned ulcer" and "sloughing of soft parts from the groin took place." DOCTOR BEAUMONT was called in consultation and with scissors cut off the mortified portions of skin and cellular tissue. The patient so far recovered that her physician, DOCTOR ADREON, advised a trip into the country, where she remained for four years, the fistulous opening sometimes closed, then again discharging.

After the lapse of four years she returned to Saint Louis and brought an action against DOCTORS S. W. ADREON and WILLIAM BEAUMONT to recover damages in the sum of ten thousand dollars for an injury which she alleged she had sustained, occasioned by a surgical operation performed by the defendants in April, 1840. The declaration averred that the plaintiff was afflicted with a hernia and that the defendants cut into the abdomen and also cut one of the intestines. The witnesses for the defendants testified that there was no hernia, but that the disease was typhlo-enteritis. The trial of the cause occupied the court nearly a week, a score of physicians, preachers and women being examined in behalf of both plaintiff and defendants, and the jury returned a verdict for the defendants.

The finding of the jury did not, however, close the case. The physician into whose hands the patient had fallen, the principals of the suit as well as many of the medical witnesses, editors and attorneys became involved in a war of pamphlets which extended over many months; and whilst the reader who pursues these literary productions after the lapse of half a hundred years is unable to decide whether Mary had a hernia or suffered from typhlo-enteritis, he cannot but be profoundly impressed with the vigorous style of the pamphleteers, and the persistency with which the participants defended their views. Then, as now, the brethern did not always "dwell in unity together."

In 1849 Beaumont removed to the city, where he continued to practice his profession until March, 1853, when he fell in descending the steps from visiting a patient. A few weeks afterwards a carbuncle developed on the back of the neck. He penetrated the mystery which lurks behind the veil of this life the 25th of April, 1853. His earthly remains rest in beautiful Bellefountaine.

Concerning his character as a man and a physician let me again quote from Reyburn's memoir:

"To you, who from personal intercourse could so fully estimate his worth, nothing that we could say can add to the veneration accorded to his memory. The amenities of character which attract us to the man, were in him united to that vigor of mind and firmness of purpose which made him the trusted and admired professional brother."

The following remarks from two who knew him long and intimately, give so correct and concise an idea of his character that it can scarcely be deemed a violation of propriety to quote them: "Doctor Beaumont possessed great firmness and determination of purpose; difficulties which would have discouraged most men he never allowed to turn him from his course. These he did not attempt to evade, but to meet and overcome. He possessed more than any man I ever knew, a knowledge (almost intuitive) of human character. You might have introduced him to twenty different persons in a day, all strangers to him, and he would have given you an accurate estimate of the character of each, his peculiar traits, disposition, et cetera, and not a few would receive some appropriate soubriquet from him."

"He was gifted with strong natural powers, which working upon an extensive experience in life, resulted in a species of natural sagacity, which, as I suppose, was something peculiar in him, and not to be attained by any course of study. His temperament was ardent, but never got the better of his instructed and disciplined judgment, and whenever or however employed, he ever adopted the most judicious means for attaining ends that were always honorable. In the sick room, he was a model of patience and kindness, his intuitive perceptions, guiding a pure benevolence, never failed to inspire confidence, and thus he belonged to that class of physicians whose very presence affords nature a sensible relief.

There are but three survivors of Beaumont's professional associates in Saint Louis: Doctor John B. Johnson, Doctor S. Pollak and Doctor William M. McPheeters. The latter has indited the following letter filled with highly interesting personal recollections:

"When I came to Saint Louis in 1841, a recent graduate in medicine, I found Doctor Beaumont in full and successful practice—the leading physician and surgeon of the town, popular alike with the public and with the profession. The reputation that he had gained during his long service as surgeon in the United States Army—which position he had but recently resigned—as well as the wide-spread fame he had acquired from the unique and important experiments on the physiology of digestion, which he was so fortunate as to have the opportunity of making, at once gave him prominence and secured for him a large and lucrative practice, to which he assiduously devoted himself.

It was not long before I made his acquaintance and was privileged to enjoy the hospitality of his home, as he was ever the friend and patron of the younger members of the profession, aiding and assisting them whenever it was in his power. His kindness and generosity in this regard was shown in the instance of a young man of gentle birth, but without means, who had served as his hospital steward whilst he was in the army. Appreciating his merit, he assisted him in acquiring a medical education, and after his graduation in the University of Pennsylvania made him his junior partner, in which capacity he in turn was able to relieve Doctor Beaumont of much of the drudgery of his extensive practice.

Doctor Beaumont was a modest, retiring man, by no means self-asserting and rather reticent, but he took deep interest in whatever pertained to his profession. He was one of the early presidents of the Saint Louis Medical Society and when I became a member of that body, he bore a prominent part in its deliberations and discussions. He was possessed of strong common sense, which, added to his long experience and sound judgment, made him a good physician as well as a skillful and successful surgeon, enjoying the unbounded confidence as well as the affection of his patients. As might be expected from his previous history, his surgical skill was frequently called into requisition, and it was never found wanting. True, the surgery of that day was very far from what it now is, but from my knowlledge of the boldness and aggressiveness of Doctor Beaumont I am sure that had his life been prolonged to the present time, he would not be a laggard in the profession."

It is true Beaumont had given to the scientific world the results of his experiments and observations before he became a resident of Saint Louis, but he did not by any means consider them complete or concluded; on the contrary, he was of the opinion that more important service might yet be rendered to science by the case. He intended to pursue his experiments still further, but like in his cherished wish of presenting his patient to the observation and experiments of European physiologists, he was doomed to disappointment—Alexis Saint Martin was never induced to place himself at the disposal of his old benefactor and friend after the latter resided in Saint Louis, although Beaumont made every effort to secure him, and the government aid which he had sought as early as 1833 by personal application was never extended.

The value of Beaumont's work to science and to humanity is so well understood that it would be superfluous to dwell upon it. The knowledge which he obtained is now common property. As accurate an observer as John Hunter or Astly Cooper, he narrated what he observed, in plain language without speculation. He added to medical science fundamental facts concerning the structure, movements and secretions of the stomach, and brushed aside at once and forever the theories that had dominated the professional mind in regard to this important organ and its function. If many of his methods seem crude, recall the surroundings in which he made his observations; notice the simplicity of the means for observing and recording, and do not forget that he was truly a pioneer in a field upon which others might have ventured, for the opportunity was not lacking, but which no one had trodden before him. And when we add to these considerations the undeniable fact that neither by education nor by experience had he been prepared for the work which he undertook, we cannot but marvel at the genius which embraced the opportunity, observed so accurately and noted so faithfully that it required half a century to add anything new to what he recorded.

In 1885 there was added to the many institutions of learning in the city of his adoption, a school of medicine and it was singularly appropriate that it should be made commemorative of him whose reputation throughout the scientific world had shed lustre upon Saint Louis. The hopes for its future success and usefulness in which its founders indulged have been realized to a gratifying degree, but no mean factor in bringing this about has been the example in thorough scientific work in which the Beaumont Hospital Medical College has endeavored to follow him as its prototype.

As the representative of the board of governors and of the faculty of the Beaumont Hospital Medical College, it gives me great pleasure to convey to you their sincere congratulations upon the happy inspiration which suggested the erection of this memorial. The medical men of this country have but recently awakened to the realization of the fact that in medicine, as in other avocations, he who attains eminence in his profession and is an adornment of his calling, is also an honor to his country.

In raising this monument upon the very spot where the opportunity occurred and was embraced for discovering great facts in the physiology of the human body, and where thousands upon thousands annually congregate in search of rest, and health and pleasure, unaware of the event which resulted in such immeasureable benefits to mankind, the medical profession of Michigan, which already occupies a foremost position for having inaugurated methods for diffusing among the people a useful knowledge of matters sanitary and hygienic as well as in exacting a high standard of proficiency in those to whom is intrusted the safe-keeping of their lives, health and happiness, has again assumed leadership in proclaimiug to the world that the heroes in medicine shall stand on pinnacles as lofty and conspicuous as those occupied by warriors and statesmen.

In honoring Beaumont you do great honor to yourselves and to your State.

It cannot but be a source of great gratification to know that this occasion is graced by the presence of the daughter and granddaughters of Beaumont—Mrs. Sarah Beaumont Keim, and Miss Irwin—both residents of Saint Louis, and the Misses Beaumont of Michigan.

BEAUMONT—CITIZEN.*

By CHASE S. OSBORN, Sault Sainte Marie, Michigan.

[Published in The Physician and Surgeon exclusively]

I consider it a high privilege to meet with you here tonight and assist in doing honor to the memory of one who has contributed so much to the science of medicine and so much to the alleviation of the distresses of humanity. It seems to me that it is a peculiar honor that has come to me and I thank you for it.

In endeavoring to learn something of Doctor Beaumont as a citizen, I have found myself greatly embarrassed on account of the inefficiency of the cyclopedias. I have consulted them all and find that the most modern and most copious say very little or nothing of Doctor Beaumont. They may refer briefly or otherwise to his work, but most of them say next to nothing. Even "Cyclopedia Britannica" and the exhaustive "Century Dictionary of Names" have the briefest sort of mention, while "Appleton's Encyclopedia of American Biography," which should contain an exhaustive account of Doctor Beaumont's life, gives many columns to less distinguished men and practically nothing to him. This is a greater reflection upon the encyclopedia than it is upon the memory of Doctor Beaumont.

I think the fact that this local association of physicians, earnest and zealous though they may be, and of highest professional standing as they are, is permitted to erect the first monument preservative and perpetuative of the memory of one who has done so much for the science of medicine and humanity, is a distinctive honor to it and an emphatic reflection upon the profession at large and that world of comparative learning that arrogates to itself, in some instances, at least, the right and duty to commemorate and honor those who confer upon humanity distinguished services.

Doctor Beaumont does not belong to Mackinac Island; his memory does not belong to the Upper Peninsula Medical Society; his fame should not be confined to the boundary lines of America, and is not, and he does not belong to any class or sect for honor or reveration. It may be true that he and his work have not been appreciated in America as they should; it is undoubtedly true that they were not during Doctor Beaumont's life.

I have been able to ascertain much of Doctor Beaumont personally from his venerable and gracious daughter, Mrs. Keim, who, although over seventy, is here tonight, and who was born on this island, but who has not been here since leaving it in her young girlhood, and from Miss Irwin, the granddaughter of Doctor Beaumont, who is also here. I am sure it has been a great personal pleasure to me, and I know it has been to all those interested in this occasion, to meet these charming ladies.

It is taken for granted that a man's citizenship may be measured by his attitude toward his family, his bearing toward his fellows, and his devotion to his duties. Doctor Beaumont was very nearly wedded to his profession, but in his interest in, and attention to it he did not permit himself to become so absorbed as to forget his family. He was a loving husband and an indulgent father. It is told of him that he would break away from his professional duties, and they were always most exacting, to take the time to build a dogcart for his little daughter, now MRS. KEIM. One of these carts was a famous vehicle and was used to draw the little daughter about the pebbly beaches of Mackinac. Attached to the cart was a pair of famous Indian dogs, like those still somewhat commonly used for draft purposes, but now going with the older civilization. These dogs were equipped with a rich harness, brought all the way from New York —quite an event at that time.

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* Delivered at a conjoint meeting of the Michigan State Medical Society and the Upper Peninsula (Michigan) Medical Society, held at Mackinac Island, Michigan, July 10, 1900.

You must remember that DOCTOR BEAUMONT began his digestive investigations at Mackinac Island long before Michigan became a state. Unlike so many army surgeons, he did not idle his time away between professional calls, but took advantage of every opportunity to improve himself and advance his profession, as is so well proven by his devotion to the case of SAINT MARTIN. His patience was often tried by SAINT MARTIN, but instead of getting angry or becoming impatient, he would take advantage of the opportunity when SAINT MARTIN was in his most trying moods, to discover the effect of temper and spleen upon digestion.

DOCTOR BEAUMONT was not a rich man, his salary was small, the demands upon him large, and yet he gave much time and money to the SAINT MARTIN case. He took SAINT MARTIN to Washington, Philadelphia and New York, and when SAINT MARTIN left him he pursued him to his place of practical concealment in remote Canada and took him to his home again, in order that he might experiment with him. If it had not been for DOCTOR BEAUMONT's appreciation of the opportunity and his devotion to what he realized was his duty in the matter, no good would have come from the extraordinary accident that befell SAINT MARTIN. The fellow would permit no other person to touch him, and although he survived his benefactor for many years, he never consulted another physician. However, he always remembered with kindness the care and treatment of DOCTOR BEAUMONT, and always gave him credit for saving his life.

DOCTOR BEAUMONT's character is shown by numerous incidents related to me by MRS. KEIM. I am informed that at one time a child had its hip-joint fractured. The injury was of such a nature that it could not well be bandaged and held in place. DOCTOR BEAUMONT reduced the fracture and instructed the parents of the child to hold it in place until it would knit sufficiently to stay in position. Soon after leaving the child, he was again summoned to its presence, and found that through carelessness or negligence the hip-joint was out of place. This was repeated three or four times, until DOCTOR BEAUMONT stayed with the child for many hours and himself held its injured member. Many a good physician would have considered the parents' interest should have been paramount and would have left the case in pardonable disgust, but his tender nature actuated him to do the other and better thing. At another time he sat for hours working over a critical case. When he came to his home in the morning hours to eat and sleep, his wife asked him of the patient and he said: "I have had an all-night fight with death, and I have stared him in the face steadily during hours of uncertainty, but for at least the present I have him beaten."

He was not a strong man and when cautioned as to his health, he said: "You need not worry about that. My strength will last as long as I am needed," and his very determination enabled him to give evidence of endurance that one would never expect of so frail a physique. His determination was often shown in other ways as well. It is told that quite a prominent army officer, in a fit of hypochondria, declared that he would die. He said there was no help for him and so he might just as well give up, refused to take any medicine and rapidly grew so indifferent as to really endanger his life. DOCTOR BEAUMONT was made familiar with the case and said: "I think I can cure him." He armed himself with a sharp riding whip, and with it he visited the officers' quarters. He did not wait to pass even the time of day, but at once assaulted the officer and gave him a sound horse-whipping. The officer jumped out of bed and defended himself as best he could, declaring in most enraged terms that he would have DOCTOR BEAUMONT's life just as soon as he recovered his strength sufficiently to take it. The horse-whipping did the work; the officer recovered. When well again he called on DOCTOR BEAUMONT. The doctor said: "Are you ready now to take satisfaction?" The officer replied that he was not; that he had come to thank him for saving his life; that if the measures which DOCTOR BEAUMONT took, had not been taken he undoubtedly would have died.

At another time, a very prominent citizen of Saint Louis, who was as wealthy as he was crotchety and vice versa, imagined himself ill. It was another case of hypochondria. The grouty old Croesus drove every physician that ventured near him out of the house. DOCTOR BEAUMONT knew him and his character very well and refused to have anything to do with him. Finally he was prevailed upon to visit him, but he went only after securing the absolute promise of his family that the wealthy patient would do whatever he was directed to do. DOCTOR BEAUMONT gave him a large prescription of bread pills and ordered that he get out of his bed at once and take a trip to the Pacific coast. To the consternation of the family and the other physicians as well, the imaginary invalid did so and did not know a sick day for years.

DOCTOR BEAUMONT had plenty of pride. While he was a slave to his profession, he was not manacled by either social customs or rules of men. He served as a surgeon in the war of 1812 and resigned afterwards to enter private practice. Soon after returning to private practice, he was offered a post in the army, but it was the same as he had had before. He replied that he would not take another position in the army unless he was advanced, and fortunately for the world he obtained advancement. At another time in Saint Louis, where on account of his renown, he had been permitted to engage in private as well as in army practice, he was ordered to go to New Orleans. He was not particularly needed at New Orleans—anybody else could have filled the post. He was needed by his private practice at Saint Louis, and so he remained, giving up, of course, his military position.

DOCTOR BEAUMONT was not convivial, but he was congenial, and enjoyed sitting on the balconies of the officers' quarters and passing an evening in conversation and story-telling, and in the long winter evenings of the northland it was his delight to visit with some of the French pioneers, sit before their great crackling log fires, smoke his pipe or drink a cheering bowl of black brandy, and encourage the musical patois of his host.

A man may be as well known by his associates as by anything else. In the army DOCTOR BEAUMONT's intimates were of the highest class. He and GENERAL ROBERT E. LEE were particularly close friends and boon companions and the friendship was continued until DOCTOR BEAUMONT's death. Another of his friends was GENERAL HITCHCOCK.

DOCTOR BEAUMONT was quite deaf from the time he was sixteen years of age. The occasion of his deafness is again an index of his character. They were celebrating the fourth of July and the boys challenged each other as to who would stand the closest to the cannon. Of course DOCTOR BEAUMONT stood the closest, but he could not hear after doing so. However, he studied lip reading and becoming an expert, had absolutely no difficulty in carrying on a conversation.

He was reared a Puritan of the Puritans and was driven to church so unyieldingly that he declared that when he reached the age of twenty-one years he would never attend church again—and he kept his word. However, he was a good man, a God-fearing man, a good neighbor, a good citizen, perfect in his attitude to his family, and of model deportment in every way.

Many were the contentions that DOCTOR BEAUMONT had with SAINT MARTIN and probably no source of trouble was greater than the gibes of the populace. They called SAINT MARTIN "the man with the lid on his stomach," and made much sport of him. DOCTOR BEAUMONT had to accustom SAINT MARTIN and SAINT MARTIN's family to these jeers, but he did not succeed in doing so until many a blow had been dealt and much blood shed. MARY HARTWELL CATHERWOOD tells, in very quaint way, a story of ETIENNE SAINT MARTIN fighting with CHARLE' CHARETTE because CHARLE' ridiculed his brother. In this instance ETIENNE stabbed CHARETTE quite severely and swore that he would kill the whole brigade if they did not stop deriding his brother's stomach.

But I have talked to you long enough. However, I do not want to close this rambling discourse without calling attention to DOCTOR BEAUMONT's magnificent wife. She was a worthy helpmate to him. A descendant of GENERAL GREENE of revolutionary fame and a strong woman in every way, she was in complete sympathy with her husband's work and vied with him in rendering services to the people. It is told of her that during the smallpox epidemic that succeeded the war of 1812, she went to a pest house and purposely exposing herself, had the disease, in order that she might be better fitted to nurse among the numerous cases. This is only one incident of the character of the heroic woman who so nobly assisted her famous husband.

I hope that the monument you erect today will stand long; that through it the many hundreds who visit this island will come to know of the life and deeds of DOCTOR BEAUMONT, and that the society whose zeal and devotion has undertaken this work may be perpetuated many years. I am sure your society will live long to do much more that is deserving and helpful, and elevating and progressive.

MEMOIRS.

PHYSIOLOGY IN THE HIGH SCHOOL.

BY LOUIS MURBACH, PH. D., DETROIT, MICHIGAN.

TEACHER IN CENTRAL HIGH SCHOOL.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN The Physician and Surgeon for April, 1900, a paper entitled "The Education of the Laity in Medicine" has much to interest the teacher of physiology in our public schools. It is gratifying to note in the article and in the subsequent discussion, the interest medical men take in this subject. Though we may not agree—nor do the doctors agree—with all that is there said, it is not our purpose to criticise, but rather to encourage further discussion, and, through this, the proper teaching of physiology and the recognition of it where properly taught.

The paper really treats of two distinct questions:—the advisability of teaching, in our public schools, physiology and hygiene, and that of teaching a smattering of technical human anatomy in order to understand one's physician or treatises on medicine. While the former is debatable, it seems to me the latter has not, up to the present, at least, ever entered serious discussion on public school education.

The discussion of the paper manifests a desire to know the practical bearings of the subject, and as the writer took no time to see what is done in any school, I deem it a privilege to be permitted space here in which to give a mere outline of a laboratory course in physiology and hygiene, approximately as given in the Central High School during the past semester. This is done with greater confidence because our course is based on somewhat similar ideas to those expressed in the paper, which in substance were:—schools should institute exact mental discipline; instruction in physiology should not be (merely) for teaching children to avoid bad habits, or shun disease or to acquire a smattering of medical knowledge; but as a part of natural science, if properly taught it inculcates scientific methods of investigation (study) and is of vast benefit in mental development.

It is needless for me to add that, nowadays, we are disappointed if any one of the sciences is taught by other than the laboratory method. In the brief synopsis given below only the subjects can be indicated but the method—wherein lies the training—may be inferred from the form of the first subject, given to show how the pupil works out all data and then draws his own conclusions. As is generally known, the strength of this method lies in the student's contact with the material studied and his independence,—forced, if necessary—in getting from the material his knowledge, and in classifying that knowledge and building up principles from it.

*Sources of CO_2 in atmosphere.**—Assuming every one to know that we breath out CO_2, we wish a test for it to learn some of its other sources.

After breathing into a wide-mouthed bottle, introduce a burning splinter. What happens? What property of CO_2 is here shown? To see if CO_2 extinguished the flame we can remove it with limewater,

* Names, not symbols, are given to the students.

which eagely absorbs CO_2. Place one-quarter inch depth of clear limewater in a wide-mouthed bottle and breathe cautiously into the bottle for some time. Introduce the lighted splinter as before, then close bottle with the hand, and shake; again introduce the lighted splinter. Does it burn? What is now proved? Was it CO_2 that extinguished the flame? What change has the absorption of CO_2 by the clear limewater brought about in the latter? Make sure of this by breathing throgh a clean glass tube into an inch depth of limewater in a test-tube.

As soon as this test for limewater is understood by the student, he may hold an inverted flask over a gas flame for a few minutes (placing a funnel in the mouth of the flask is more effective), then closing the mouth with the hand cautiously pour in a tablespoonful of *clear* limewater, close again and shake. What does the change that has taken place indicate? What difference in ventilation will the gas burners in a room necessitate? Burning as ordinarily understood means the union of oxygen with carbon in carbon-containing substances, but chemically speaking it is the union of oxygen with any substance.

From a covered dish or test-tube of decaying organic matter pour carefully as if pouring water, the foul gas into a test-tube, containing one-half inch *clear* limewater. Close the mouth of the tube and shake. What does the milky look indicate? What gas is given off from decaying organic matter?

Into a test-tube containg a fermenting liquid (previously prepared by the student) introduce a drop of clear limewater on the end of a glass rod: Examine the drop carefully for any change. Try again. What gas is given off from the fermenting liquid? What are the natural sources of CO_2 in the atmosphere as from the above experiments?

Pour water over a pinch of baking powder in a test-tube. What is the cause of bubbling? Test with drop of limewater on the end of a glass rod. Record result.

Here we usually have one experiment and discussion on the economic use of CO_2 in baking.

The teacher now leads pupils to see that all substances containing carbon, when oxidized, give off CO_2, and this may be made more evident from the following experiments: Heating meat, wood or sugar, in the Bunsen flame until they char and finally burn, the product of which burning, we have learned, is CO_2. It is then pointed out that a similar, though slower, process takes place in the body.

From this subject it is an easy transition to *ventilation*, illustrating the principles, getting the currents in the schoolroom and making experiments with devices for ventilating an ordinary room—all for getting rid of so-called impure air, CO_2, and organic matter of breathed air.

Next come, very conveniently, "other products in the air we breathe," and here the pupil is brought face to face with *causes* of souring milk, decaying organic substances and fermenting sugary liquids.

Study of Bacteria and Yeast.—Cultures in gelatine or on potato slices from dust and from the rim of the corridor drinking cup are made, leading to the conclusion of the universal presence—wherever air has access—of bacteria. The three kinds as to form are examined under microscopes by students from their own cultures. One experiment is made to show a method of antisepsis. Fermentation in sugary liquids and milk prevented by boiling and stopping with cotton is illustrated.

Cells.—Some of the more characteristic cells are studied by each pupil, first in amebæ, then red and white corpuscls, epithelial cells from mouth, and muscle cells—plain and striped.

Study of Food-stuffs in Foods.—Simple tests are made for starch, sugar, fat and proteid in *known* foods such as corn starch, glucose, mutton tallow (extracted with chloroform), and white of egg. Then students are given yolk of egg, milk, beans, castor beans, peas, flaxseed, wheat and wheat flour, barley and then sprouted barley—for sugar—to determine the principal food constituents. The uses and abuses of alcohol and narcotics are discussed from a scientific and moral point of view, rather than from a dogmatic, prejudiced, emotional one.

Digestion.—After the brief study of foods, some digestive experiments naturally come in. These are of course very simple in nature, as are all our experiments. We begin with simple solutions, as of salt and sugar in water. Then is given an experiment showing that calcium phosphate and carbonate, common constituents of the body, not being soluble in water, are dissolved by dilute hydrochloric acid of the same strength as in gastric juice. Then the melting point of some common fats is determined in a simple way, in order to find the ease of digestion of common food fats. Artificial emulsion is compared under the microscope with natural emulsion as found in milk. The relative digestibility of raw and cooked food is illustrated by testing for sugar in a mixture of boiled starch and saliva* and unboiled starch and saliva, after one to ten minutes reaction.

A few experiments in osmosis with egg membrane and intestinal membrane of sheep are here introduced to help understand the process of absorption of liquified foods. Diffusion and absorption of gases through moist membranes are discussed in connection with respiration.

Each of these laboratory exercises is filled in with question and discussion bearing on the topic in hand.

The organs of the body actually studied in the laboratory are the following: the kinds of bones in the body,—long, short, flat—correlated with their functions, kinds of joints, places of attachment of muscles; the lever-functions of long bones, with some simple problems of lifting weights, support of the body's weight in walking; the heart, from models and specimens; the circulation as seen in a frog's foot or mesentery; finally, the general appearance and position of the internal organs in a freshly killed frog or guinea pig, —two of the least objectionable animals I have ever found for that purpose. The latter may be in form of demonstration to groups of pupils.

The ear from model and discussion, and the eye from specimens and models are brought into the laboratory work if time permits; this study is either followed or preceded by a few experiments on skin sensation.

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*Each student tests his saliva and we not infrequently find it acid, and therefore find no digestion of starch. The digestion of white of egg cubes is tested in alkaline and acid solution of gastric juice, in alkaline and acid solution of pancreatic juice.

Besides these laboratory exercises, there are discussed in the ordinary way, respiration (with some experiments), circulation, excretion, hygiene, bacterial origin of diseases, immunization, isolation, disinfection, antisepsis, emergencies and what may be done before the physician arrives. Pupils are warned that in no case is any of their knowledge to be used for dosing themselves or others—they are not to trespass on the physician's domain.

This work occupies daily forty-six minutes for laboratory work or forty-six minutes for recitation during five months. The material and apparatus needed is very simple and inexpensive, and could be supplied by the payment of fifty cents per course for each student, while not more than twenty-five cents would be required to keep up all running expenses. In smaller schools the same course could be given somewhat simplified and using only such things as could be brought by pupils from home.

As to our method I would add a word of emphasis and would say that its value lies, I believe, not only in experiment but also in questions which the pupil *must answer from experiment or specimen*, and this differs from that which so many books adopt, saying to the teacher, "Explain that this experiment *shows*," et cetera. Such methods, and experiments whose headlines embody their conclusions defeat their chief aim and lose their value in science training.

HYGIENE OF THE EYE.*

BY WILLIAM H. POOLE, M. D., DETROIT, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THIS subject has not received the attention to which it is entitled, and while I feel my inability to do it justice, if my remarks serve only as the basis for discussion and direct attention to some of the more important points I shall be amply repaid. It demands examination of the various influences affecting society, whether for good or evil, with a view of advancing the former, and checking, as far as possible, the effects of the latter. It necessitates the enactment of laws whereby the welfare of the whole shall be kept from the mistakes of a part, and, more important still, it aims at the prevention of disease by removing all avoidable causes. It therefore requires the aid of physicians in preventing as well as curing diseases; of the lawgivers to enact and enforce means of health preservation; of public school teachers and educators to impress on the minds of the people at large, the most desirable rules of life and action; and of the people themselves in making continuous and strenuous efforts to better their condition by their own exertions and self-restraints. This is unquestionably an age of improvement, and advances along this line are being made at such rapid strides that we may well denominate it the hygienic century. No loss of general health is such a privation to an individual as loss of sight, for thereby he becomes a public charge, being unable to fulfill the duties of a useful citizen. This renders hygiene of the eye as important or more so than that of any other organ of the body.

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*Read before the DETROIT MEDICAL SOCIETY, October 17, 1900.

The state recognizes the importance of this subject, and has enacted laws requiring reports of inflammatory or purulent eye trouble occurring in infants, within two weeks after birth, in order to prevent loss of vision: and thus reduce the increased burden upon taxpayers for the support of institutions for the care of the blind. Hygienic measures during the first days of the infant's life are very necessary, in fact they should begin before the birth of the child by giving proper attention to the vaginal passage of the mother; making use of such antiseptic applications as are deemed necessary to prevent possible infection of the child's eyes at the time of its delivery. This coupled with proper care of the child's eyes after birth will usually prevent ophthalmia neonatorum, which is responsible for so many of the blind. It is appalling to think that in Europe there are three hundred thousand blind ones, one-tenth of whom have been made so by this disease. In this country the proportion is considerably less, owing to the watchfulness and care of our physicians.

In infancy, the one great avenue to the development of the intellect is through the eye. The eye at this period holds in abeyance all the other senses. The child when insensible to touch, taste, smell or hearing will become aroused to action by a bright light or bright colors, or the movement of an illuminated object, proving that light is essential to the development of the first and most important sense. The infant of but six days of age will recognize a candle flame, while its other senses, hearing, taste, touch and smell will not be equally developed for six to eight weeks. Inasmuch, then, as light makes such an early impression on the delicate organ of vision, how essential it is that we guard the infant from exposure to a light that is too bright and glaring. Mothers, not only the young mother with her first child, but also those who have had several children, are too apt to try to pacify a restless child by placing it near a bright flame; causing much evil to the future use of the eyes by this pernicious habit.

Light brings into action certain cells of the retina, and an over-stimulus prevents the action of those cells, thus sowing the seeds of future trouble. Let an adult gaze upon the arc of an electric light or into the sun, and for many minutes and sometimes hours he has scintillations and phosphenes, dancing before his vision. His direct vision becomes blurred, and as in a case I have in mind there may be permanent loss of sight. How necessary it is then that parents should be instructed by the family physician not to expose the little one to too great light, and when in the open air to protect the child's eyes from the direct rays of the sun.

Civilization is the progenitor of many eye diseases. The increased demand that the exigencies or the fashion of the times makes upon the eyes as well as upon the brains of children, and the increased numbers that are yearly brought within the influence of school life by the compulsory laws of governments, call for an increased amount of precautionary measures through scientific means, or universal education will never become an unmixed blessing, but rather a curse. M. JAVAL, of Paris, expressed it thus: "The necessity of reading with an increased assiduity, and at a more and more tender age, print whose fineness has been increasing from generation to generation, has resulted in generalizing myopia to such a degree, that if means of precaution are not taken this defect will end by affecting the whole human species."

As soon as a child arrives at the age when it is necessary for him to begin the education prescribed by the wise men, hindrances are placed in his way which aid in causing deterioration of vision. Our children begin school life at too tender an age. All things being equal, a child of six years of age compelled to study all day, or even part of a day, will not run the same race that one will who begins his studies at nine or ten years of age. While the overcrowded condition of some of our school rooms is an important matter, it is not so great a factor as the enormous amount of work in causing deterioration of sight. The law prescribes that so many grades must be passed, so many books must be read, a definite number of compositions written, all probably in rooms with insufficient or artificial light. What is the result? At first, possibly, distant vision gives way; the teacher sympathizing with the overburdened child, tries to lighten the burden by seating him somewhere else in the room, and frequently places him under the cross-light from a window. As the refractive error increases the child is taken to an ophthalmologist, and the unavoidable prescription for glasses—truthfully named "crutches for the eye" is the result. Stop and think a moment: how long would we tolerate a condition of things which would so weaken the legs of that child that he would be compelled to depend upon crutches all his life? Yet this making optic cripples is one of the evils civilization is responsible for, and our best efforts should be put forth to remedy it. Parents should be instructed to see to it that the children have plenty of outdoor life and exercise, care being taken to clothe them suitable to the season.

Another very important point in preserving the general health, and at the same time guarding the normal tone of the eyes so that they will not so easily succumb to school work, is proper heating and ventilation. Owing to defective mechanical construction, there are very few of our school buildings where this is possible. Where means for proper ventilation have been provided, it has been found that greater expense for fuel has been entailed. Ignorant janitors too frequently have charge of this matter, and as they are subject to criticism and possibly discharge if too much fuel is used, the health of the pupils is sacrificed to satisfy the demands of self-interest and so-called economy. While this is true regarding the great majority of our public school buildings where the children of the poorer and middle classes are educated, it is even more noticeable in a large proportion of private schools, which are generally conducted in buildings which were built and intended for residences; and we frequently find a score or more children or young people spending many hours a day in an ill-ventilated, overheated and poorly lighted apartment that was originally intended to be occupied for a short time only by five or six persons. Little wonder then that we have debility and nervous exhaustion and eye fatigue as the result.

Myopia or nearsightedness is almost universally recognized as a pathological condition instead of being physiological. The best statistics of eyes examined at birth, show that practically none are then myopic. It is, therefore, unlike the other optical errors which are congenital without disease, and is the result of some outside cause which brings it about. Among the factors mentioned in the "American Text-book" which favor the advent of this condition and its aggravation, near work receives universal recognition. Especially is this so when such work is aggravated by poor light and smallness of the thing observed, close application indoors in sedentary occupations, stooping over one's work, causing congestion of the veins and increased pressure of the fluids in the eye, increased tension of the eye from accommodative strain and pressure of the eye muscles in strong convergence. We find from a study of the statistics of both the old country and this, that there is a gradual increase in the percentage of myopes as we advance along the different grades of school life. This percentage rises frem about six per cent. in the primary grade to about thirty per cent. in those graduating from the high schools. While this myopia shows a natural progressive tendency under these conditions, yet we find that when school life is over and the demands of excessive near work are ended the myopia in a great many cases ceases to increase. This would seem positive evidence that school life is an important factor in causing this condition of the eye.

The question is frequently put to us why is it that so many young people of the present generation wear glasses? We have already given one answer to that question, namely, that the eyes and systems of our pupils have become so deteriorated that they cannot do the full amount of school work. What, then, is the remedy? It does not seem advisable to lessen the amount of work, though possibly, some of the studies might be cut out and replaced by others that might be more profitable, or the time gained by eliminating some of the subjects from the curriculum might perhaps be well devoted to a more perfect mastering of some other more essential branch; but the remedying of the defects in the environment of school life, such as an improvement in the heating, lighting and ventilation, together with some good wholesome instruction given to the pupils themselves through the medium of the teachers, and to the parents by means of advice from the family physician, will do much toward offsetting the evils incident upon school life, and result in a healthier and more hygienic condition of the eyes not only of the present generation but of those to follow.

The seats and desks in our public schools should be so constructed and arranged that they will suit the size of the pupil, being neither too high nor too low. In the former case the child's shoulders will be unnaturally raised when resting the arms upon the desk. In the latter case the body of the pupil is inclined forward and the head bent over so as to bring the object looked at within range. This produces congestion of the head and eyes by interfering with the circulation and indirectly becomes a factor in the production of myopia. Regarding this PROFESSOR ESMARCH says: "School children become myopic owing to the bent position of the body when they are seated on badly constructed old-fashioned benches. The trunk is bent when the bench is too far from the desk, when the former is too low relatively to the latter, or when it is without a back. So, seats are inoffensive only when the child can sit upright on them while reading and writing and can keep this position long at a time without fatigue. In order that this requirement may be met it is necessary (1) That the bench be raised above the floor the length of the child's legs (measured from the popliteal space to the sole of the foot). (2) It ought to be as broad as the thighs are long (the distance from the popliteal space to the back). (3) The front rounded edge of the bench ought to project two or three centimeters beyond the inner edge of the table. (4) The seat should be sufficiently high so that the child can, when writing, conveniently rest the forearm on the table, without raising the shoulders and without bending the neck or leaning forward. (5) The lower part of the child's back should be properly supported when the scholar is reading, by means of a short chair back. These conditions vary with the growth of the child, and the above measurements should be repeated and the scholars assigned suitable seats at least as often as once in six months."

These remarks by so eminent a surgeon seem to be well worth our careful consideration as there is a great deal of common sense in the suggestions laid down by him. How can these desirable ends best be attained? One plan that suggests itself to my mind is to have our schools furnished with adjustable desks so that the height may be adjusted to suit the requirements of the individual pupil, then again when there is a tendency to myopia or when the light so affects the page or work upon the desk as to produce glare, the inclination of the top of the desk could be so adjusted as to obviate the trouble or at least to minimize the evil to the greatest extent. It is an axiom of physics that light reflected from any given surface varies inversely to the square of the distance of the object. We know too that the angle of reflection is equal to the angle of incidence. Bearing these truths in mind we readily see the necessity of having the book bear such a relation to the face and to the light, that the angle of incidence shall not be the angle formed by the book and the eye.

Insufficient light is the cause of a great many eye troubles, inasmuch as it necessitates bringing the work closer to the eye than would be required if the light were sufficient. The proper lighting of our public schools is a bone of contention between those of us who have made this matter a study and the members of the educational boards having in charge the construction of school buildings. It is not always an easy matter to have a sufficient quantity of light enter a room so that it will shine over the left shoulder of the pupils, yet great strides in advancement have been made along this line. However, there is still room for improvement, for while in a large room those seated near the side from whence the light comes have an adequate amount of light, yet those farther away from the windows are not as fortunate. This might be remedied by extending the windows a little nearer the ceiling and by making use of prismatic lights of glass in the upper parts of the windows. The window space should equal at least thirty to fifty per cent. of the floor space in each room.

The adjustment of the window shades should receive some consideration. They should be used only to protect the eyes from the direct rays of the sun, and so placed as not to exclude the amount of light needed to read fine print easily; therefore they should be adjusted at the middle or bottom of the sash, or both, and be drawn upward instead of downward from the top as ordinarily is the case now. The color of the shades should be such as will admit of the greatest amount of light and yet prevent glare.

Some improvement might be made also in the printing of text-books, making use of large clear type, good black ink and a better quality of paper without the gloss which reflects the light and tires the eye.

The malposition of the blackboards in some of the schools is an evil that needs remedying as it exerts a very deleterious influence upon the eyes of all the pupils. A great many of our schoolrooms have the blackboards placed between the windows as though the board were loth to let these spaces go unused in the schoolroom. Outside of the fact that these blackboards can never be sufficiently lighted, great irritation is caused to the eye from looking directly towards the light in trying to see what is written on them. As far as my time would permit I have visited some of the schools in different parts of the city to ascertain how matters stood in regard to these several points, and in every building which I have visited I found the blackboards between the window and behind the pupils, in fact all around the room, so in order to see what was on the blackboard the pupils were compelled to crane their necks and turn their heads around, producing instant congestion of the vessels in the neck and disturbed conditions of the visual apparatus. This you can readily prove by trying it. When I talked to the principals and teachers about it they replied that those spaces were only made use of occasionally and generally were used for decorative purposes, drawings, et cetera, but in many cases I found them in actual use with writings on that were part of the day's studies. I learned upon inquiry that frequently the obstreperous, ill-behaved members of the class have their seats so changed that they can be more readily looked after by the ever watchful eye of the teacher. This is done irrespective of the visual considerations, and might very easily prove disastrous to the eyes of not only the lively boy who needed looking after, but to those of the better behaved one who was moved back and farther away to make room for him.

It does not come within the province of this paper, even though time permitted, to discuss refractive errors, particularly with regard to the misuse of glasses, yet I desire to call attention to some facts which are patent to us all and which need correction. There is scarcely a village in this state but has its store where spectacles are sold and fitted by the clerk. The journeyman workmen in the jewelry shop is considered competent to correct errors of refraction, with the result that in many instances the ametropia is uncorrected or overcorrected. In these cases the patient decides upon what glasses are to be worn, and having experienced an improvement even for a short time is satisfied that he has what is suitable, and the incompetent salesman congratulates himself upon the correctness of his judgment in the selection. Perfect vision implies perfect physiological conditions of the optical apparatus, and any deviation therefrom is manifested by perverted or impaired vision. This impairment may show itself directly bv indistinctness of outline, imperfect light perception or indirectly by various reflex phenomena. Unless there are present some external evidences of inflammation, a person suffering from defective vision applies to the optician or jeweler, sometimes even by direction of a physician, with the result that improvement in vision is experienced as soon as the glasses are placed before his eyes — this holds good even when the eye has normal physiological vision — but the improvement is only temporary. However, the applicant is convinced that he requires glasses and is quickly satisfied that he has the proper correction. Having bought and paid for them, he considers it his duty to continue wearing them, even though the improvement once noticed has disappeared and pain and other phenomena arise. If this becomes intolerable he returns to the optician and a change of lenses is made, to be succeeded in a few days by another change and finally ends by consulting an oculist, when the true condition of things is ascertained and rectified as far as possible. Frequently, however, some damage to the eye has been superinduced which is irreparable.

This indiscriminate prescribing of glasses by irresponsible parties is especially to be deplored in the case of children. Great harm has been and is being done in this way, and one can scarcely estimate the number of useful lives sacrificed or turned into some other channel by this means. We have a state law regulating, with a certain degree of success, the practice of medicine in its different branches, requiring qualification and proficiency to protect the people from incompetent and unscrupulous pretenders. This law should be enforced to protect the people who require a correction of refractive anomalies. More attention is demanded of us in preventing the evil consequences arising from the attempts of the jeweler, his apprentice and the street fakir in correcting errors of refraction. While the general practitioner may not consider it his duty to prescribe glasses, yet he should take cognizance of these cases, sufficiently to determine who requires a detailed examination by an oculist and so direct his patient. This protection is due his patient as much as the protective care of any other organ, and the patient has a right to expect it of his family physician.

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THE PERITONEUM AND THE OMENTUM IN APPENDICITIS.*

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During the course of the past four years, in my observation of about one hundred twenty-five cases of appendicitis requiring surgical interference, my attention has been repeatedly drawn to the disposition of the peritoneum and of the omentum and necessarily, therefore, to the influence, good or bad, which their positions and conditions may have upon the pathological processes for which exploration was undertaken. Are the outpourings of lymph, their subsequent organization into mature tissue adhesions, the rolling up of omentum, its attachments to appendix and intestine, conservative elements in the progress of the disease or are they integral parts of the disease process itself? Why do these changes take place, and what effect do they have in diagnosis and prognosis?

It being physiologically true that increased or unusual stimulation of a cell results in increased activity of that cell, it is both safe and logical to assume that the converse is true as well; namely, that when we do have excessive cell activity, it must be due to stimulation either greater in amount or different in nature from the stimulation which that cell usually receives. Only too often, unfortunately, we are not able to recognize the causative factor but it certainly must be there. Specifically, therefore, in the condition under discussion, the peritoneal adhesions and the omental attachments which are almost always present, are due to some sort of cell activity, resulting in turn from the hyperemic or inflammatory processes of the appendix or of the cecum or of both. In the cases in which they are present, they are present early, showing that the organism is concerned in their production from the start; and not only from the known fact that nature has instituted in all tissues a tendency to repair after injury, but also from the recognized clinical benefits accruing from such adhesions and attachments, we look upon them as conservative factors, striving to limit the disease process and to conserve the life of the individual. Sometimes the aimed-for benefits do not result, the potential good being overshadowed by the harm, as when firm adhesions interefere with satisfactory manipulation of the cecum and appendix, giving no end of trouble to the surgeon. In this connection I recall two cases in which the appendix was so firmly bound to the great vessels at the brim of the pelvis that it seemed impossible, at least unwise, to separate it. Adhesions work evil, also, when after removal of the appendix, their persistence or reformation causes excessive discomfort to a patient or even brings him into the danger of death. Two cases have come under my observation in one of which the abdomen was opened three times, in the other twice, subsequent to appendix removal, in attempts to relieve the distress coming from the traction of adhesions; and I have seen two cases in which, at a second laparotomy adhesions were found causing complete, or nearly so, intestinal obstruction.

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On the other hand, how many dozens of cases have all of us seen in which the fortunate closure of an intestinal or appendiceal perforation by contiguous peritoneum or omentum, or the successful walling off of fecal matter and pus by the agglutination of serous-surfaced intestines has prevented a probably fatal general peritonitis? It is scarcely necessary to speak of the normal lines of limitation about and near the appendix; and still, since we find the appendix in all of its possible positions, the question of infection and pus formation and the spread of the same assumes considerable importance. One can hardly fail to be impressed with the small number of cases in which general peritoneal infection takes place when the appendix is behind the cecum, either actually extraperitoneal or in the space between the colon and the lateral abdominal wall, as compared with the frequency of such occurrence when it presents anteriorly, inferiorly or toward the median line. The reason must be plain: in the latter case, there are dozens of paths between and among the coils of small intestine by which infectious matter can go; in the former case the infectious material finds itself controlled on the one side by the cecum or colon, on the other by the lateral abdominal wall. Now, barring the conditions in which it advances by involving the connective tissues of the abdominal wall or by perforating the bowel, in order to progress, the pus must travel downward or upward or over the front of the colon; but this progression seldom takes place. The opening toward the pelvic cavity between cecum and abdominal wall is a small one and it requires but little activity on the part of the endothelium and associated tissue to cut off this way of egress. The outlet toward the liver is larger and less easily closed, and not infrequently we find pus traveling upward here as far as the liver. Fortunately here again adhesions are readily formed between that portion of the peritoneum which serves as the right lateral ligament of the liver and the parietal peritoneum, and between that ligamentous fold and the peritoneum covering the hepatic flexure of the colon and its progress is barred. So then the only way left is over the anterior surface of the colon and two obstacles present themselves here; one the colon itself, which because of its distension is almost certainly firmly held against the anterior abdominal wall and is adherent to it: The other the omentum which seems to have an almost instinctive reasoning power, directing it to place itself properly when strong fortification is needed. This tendency on the part of the omentum to find itself wherever much walling off material is needed has been noted and mentioned by many men. I presented it not as a new fact, only I have been interested and impressed to see its great usefulness in so many cases. In distinctly infected cases one can almost orient himself and locate the chief point or points of danger in a diseased intestinal wall or appendix by carefully observing where the omentum endeavors to mass itself. I recall one case in which operation revealed a great roll of omentum which had wrapped itself most carefully about the distal half of a long appendix; realizing that perhaps it was occluding a perforation, we did not seek to disengage it but cut the attached portion from the omentum itself and then removed the appendix, taking care of the stump in the usual way, that is by ligation and invagination into the cecum. The abdominal wound was closed as usual and the case pursued an aseptic course. After the operation we incised the omental tumor and the enclosed appendix and found the perforated tip of the appendix and a fecal concretion lying in a well developed abscess cavity containing no less than two ounces of pus, all within the rolled up omentum, showing how in one case at least the omentum was the barrier between life and possible death. I have notes of another case, in which at least one-half of the wall of a fair sized abscess cavity was made up of omentum alone.

The peritoneum itself is no less concerned in this distinct limiting process than is the omentum, in fact more so, because we find case after case in which adhesion between coils of small intestine or between small intestine and colon or abdominal wall bars the progress of infectious matter; and how often we find actual or potential perforation of an appendix robbed of its danger because the endothelium about it has become adherent to that of a neighboring intestine or to the peritoneum of an abdominal wall. We simply imitate nature in this way, every time we employ a piece of gauze packing or a Mikulicz drain. If only we could always get adhesions where we want them and prevent their formation where they are undesirable a few of the hard knots of surgery would be untied.

About ten years ago realizing the rapid and firm agglutination of which approximated serous surfaces are capable, **Doctor Senn** brought to the minds of the profession the propriety of doing artificially what the organism attempts to do, and so often succeeds in doing for itself, through the endothelial structures of the abdominal cavity. He advised the employment of omental splints or grafts whenever only imperfect closure of a wound in a hollow viscus could be obtained, or for the purpose of fortifying presumably perfect lines of suture; in this way there would be the least possible chance of leakage of infectious matter. Such increased amount of formative material would be of great value in hastening the closure of fecal fistulæ, especially fistulæ entering the bowel where peritoneal covering is normally absent, fostering the closure not only by its physical presence but aiding in the specific healing process as well.

Doctor McGraw, four years ago, emphasized the great importance of omental splints in intestinal surgery, and cited two cases of fecal fistulæ in which their employment was the keystone of success. Instead of using flaps or grafts of omentum, however, **Doctor McGraw** preferred to leave the omentum intact, thereby preserving its vitality; he simply drew a portion of it to the place where it was desired and sutured it into place. In this way, also, the possibility of intestinal obstruction from a tense cord-like flap was avoided. The success attendant upon the employment of omental splints in closing fistulæ is due in large measure to the fact that the serous membrane is peculiarly resistant to the irritation of feces and pus, and therefore its physical integrity is not so readily destroyed, as is the case with the purely connective tissues. In addition to the physical restraint of fecal matter through fistulæ or wounds of intestine by the omentum which so quickly becomes adherent about it, we find that the healing processes in the intestinal wall itself go on with the minimum of interruption. At the University Hospital we have been in the habit of fortifying invaginated appendiceal stumps and sutured intestinal wounds with bits of omentum or mesentery, or meso-appendix, whenever they happened to be conveniently situated. In one case, particularly, of almost complete resection of the stomach we brought into commission a part of the omentum remaining, to strengthen a section of the suturing thought to be not quite perfect. The patient recovered with no apparent sign of leakage; but of course, whether that was dependent at all upon the additional omental pad, no one can say.

Now a few words as to the cause and method of formation of those serous surface adhesions. Are they simply coagulated lymph or organized tissue? If the latter, are they the result of endothelial activity and proliferation or do the formed elements come from the underlying connective tissue? Is there a specific irritant causing them or do they result from the increased blood supply of simple congestion or from definite infection? In a large number of postmortems upon dogs in which intestinal anastomosis was done—very few of these dogs die, they are killed for the purpose—I have observed that almost invariably one of three things happens: the sutured intestine becomes adherent to neighboring loops of intestine or to the abdominal wall, or as is more often the case, it is wrapped about with omentum. I think that these things are more apt to happen in dogs than people because of the great tendency of the peritoneum to retract from the cut edge of the thick intestine, thereby leaving exposed small areas uncovered by serous membrane. I am also aware of the undesirability of drawing too definite conclusions from experiments upon animals; still I think it is reasonable to assume that similar tissues in all organisms at least tend to act in similar ways.

Now why does this agglutination take place? Knowing that irritation causes increased blood supply, that increased blood supply means increased activity of cells, and knowing that these particular cells are capable of secreting coagulable fluid, it is right to say that at the beginning the adhesion is a purely mechanical bond of union between the two surfaces, very much as the coagulated blood between the lips of a clean incised wound of any tissue, is a mechanical bridge until organization takes place. What becomes of this lymph? If the surface remains quietly in contact for a sufficient length of time, organization into connective tissue takes place and the true adhesions are formed; if not, the lymph either softens and is absorbed or small patches of it organize and remain attached to the intestinal wall. What determines whether organization or softening shall take place? Some men have contended that only infection (and by infection I do not mean suppuration) will determine sufficient activity on the part of the cells to cause organization; but in some carefully conducted experiments upon frog mesentery noted by DOCTOR NANCREDE in his work on the "Principles of Surgery" I have shown that under absolutely aseptic conditions, proved by culture, we have not only slowing of the current, and enlargement of blood and lymph vessels, diapedesis of white cells, but also outpouring of lymph; in fact everything incident to the processes of repair and therefore of organization. Granted then that we may have organization of adhesions, the valuable point to determine is the source of the connective tissue cells. They must come either from proliferation of endothelial or of the fixed connective tissue cells underlying. This is of considerable importance clinically because if they come from the former, are we acting conservatively when we injure and scrape away the serous membranes from tissues which we seek to make permanently adherent? Or if they come from the latter, shall we always carefully seek for perfect approximation of the serous surfaces themselves?

According to the teachings of NEUMAN and GRAWITZ, the exudate is a kind of fibrinous degeneration with destruction of the endothelial cells and a subsequent organization resulting from activity of the cells of the underlying tissue. BORST says that we have first a hyaline degeneration, then organization. GRASER and HEINZ as a result of a large number of experiments, conclude that the endothelium has little or nothing to do with the healing process; on the contrary that the endothelial cells protect the serous surfaces and prevent their agglutination; that only when these overlying cells are destroyed can real union of such surfaces take place and that when these surfaces are approximated, the endothelium is destroyed within forty-eight hours.

From some experiments made by myself upon dogs, I must say that I found very little difference in the perfection of the union whether the cells were removed or not. Macroscopically the unscraped surfaces seemed to be more firmly held together; microscopically the lines of union showed nearly the same changes. All endothelial cells over the surfaces in contact had disappeared, and the cells of the underlying connective tissue were in active proliferation. So I think that we are not far wrong in our practice of destroying or scraping away the endothelial elements when we seek for union of serous surfaces, nor in being careful not to injure those cells when we seek to prevent adhesions.

Entirely opposed to the desirability of securing peritoneal adhesions under certain circumstances is the desirability of preventing them in others. The persistence of adhesions, particularly in appendicitis, has demanded re-opening of the abdomen, both because of pain and because of partial or complete intestinal obstruction; and it is well in so far as it is possible, to limit them by bearing in mind those things which favor them. Destruction or injury to endothelium is almost necessary for the formation of adhesions, therefore superfluous handling should be avoided. Drying of peritoneal surfaces is a well-known favoring circumstance and knowledge of that fact should make us have care in this direction. If irrigating solutions must be used let them be not of the kind which injure the cells, even sterlized water having a more or less destructive action; salt solution is by far the best available, because after all it is the mechanical cleansing which does the good, not the slight antiseptic effect of the fluid employed. Besides, salt solution is not only not irritating to the cells but is a decided stimulant to their well being. Of course, adhesions even thoroughly organized ones do not always remain. Unquestionably peristalsis tears a great many of them and they are seen as little tabs of tissue hanging to intestine or abdominal wall; and others certainly soften and disappear by absorption.

In connection with this subject it would be of interest to consider the variations in the quality and quantity of the adhesions met with in abdominal surgery; to discuss the general classes of cases in which adhesions are strikingly absent or are propitiously present; to observe the effect which their absence or presence has upon prognosis; also it would be valuable to call attention, at some length, to those forms of distinctly omental tumors frequently met with, but that is somewhat beyond the scope of my paper.

A SUMMARY OF THE YEAR'S WORK IN OBSTETRICS.*

By THEODORE R. MACCLURE, DETROIT, MICHIGAN.

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[CONTINUED FROM PAGE 559].

THE PUERPERAL STATE

Is that period after labor in which the genitals are regaining the condition proper to those of the nongravid woman, and may be said to begin immediately after the expulsion of the placenta. There are changes which take place in the outlet and vagina, the uterus and its muscular tissue, mucosa, vessels and nerves, the tubes and ovaries.

For the first three days quite a large quantity of detritus comes from the uterus. It is at first a bloody fluid and is spoken of as the *lochia cruenta;* from the third to the eighth day this excretion contains serum mixed with coloring matter of the blood, together with epithelial and cylindrical cells, and is spoken of as *lochia serosa;* in the second week appears the *lochia alba* containing leucocytes, fat, cholesterin and connective tissue cells.

The author then considers the pathology of the after pains, urine, bowels, temperature, pulse, respiration, skin, digestive apparatus, and lactation.

CARE OF PUERPERAL WOMEN.

Nourishment.—Liquid food should be given for the first few days, including water to allay the thirst. After the third day a gradual return to the usual diet; and after the first week the patient's own taste can be consulted, provided that nothing too heavy or indigestible is craved.

Rest.—Complete bodily and mental rest should be enforced from the closing of the third stage of labor. Visitors and friends should be prohibited and the husband and mother should not be permitted to remain long in the room. Excessive joy or grief have not infrequently caused death in puerperal women.

The *excretory organs* should be kept active.

Care of the genitals should be under the supervision of some competent nurse, and rigid asepsis enforced. If septic conditions are supposed to be absent, vaginal douches are unnecessary. The external genitals can be gently cleaned and protected by aseptic dressings held in place by a napkin attached in front and behind to the previously adjusted abdominal binder. These dressings should be changed three or more times daily according to the amount of soiling. If sepsis takes place weak antiseptic douches should be employed.

Nursing of the child is delayed for a few hours, after which it should be put to the breast regularly every two hours from 6 A. M. to 10 P. M., unless there be some contraindication.

The physician should always remain within call until the uterus has firmly contracted; and if this does not take place promptly and completely there should be stimulation by friction, Faradism, hot douches, ergot, et cetera. Before leaving the physician should ascertain the condition of the mother and child, and thoroughly examine the child for abnormalities, especially imperforate anus and retention of the urine. Any displacement of the maternal uterus should receive prompt attention.

Diagnosis of the Puerperal State is important from a medico-legal standpoint, and DOCTOR JEWETT fully describes the positive, probable and uncertain signs of the puerperal state.

THE NEWBORN AND ITS MANAGEMENT.

I will not attempt to review the anatomy of the newborn child, but it may be stated in general terms that the thoracic and abdominal viscera are relatively more developed than are the brain and digestive apparatus; the bones are soft and flexible, from the excess of animal matter and deficiency of calcium phosphate; the muscular structures are undeveloped; and the circulatory and lymphatic systems are relatively large.

The first care of the attendant after delivery is the establishment of respiration, and ligation of the cord by single or better double ligature. If the infant is not too weak, it should be given a thorough bath in water about 95° Fahrenheit. Gentle friction may be used in annointing with the oil for the removal of the serum. The eyes and the mouth are again cleansed. The use of an irritating soap may cause much trouble; ivory soap is preferable. The cord is wrapped in absorbent cotton, laid on the abdomen directly to the left side, in order to avoid irritating the liver which is sensitive, and held in place by the bellyband. The child is then to be dressed somewhat as follows: Flannel skirt open in front and fastened with tape or button, diaper, another flannel skirt—upper part linen, cotton skirt, dress, jacket, stockings, and pinning blanket. It is important that every obstretrician be prepared to direct, and if necessary, do any or all the work of the lying-in chamber.

After the mother has been allowed to rest for six or seven hours, the infant should be placed at the breast. This aids mammary secretion and uterine contractions and helps to establish the habit of suckling. No other food should be permitted except by direction of the medical attendant. The mother as a rule should nurse her own infant; but if nursing is contraindicated, a teaspoonful of sterilized water every hour or two may be temporarily prescribed, and it should be remembered that the infant is unprepared for digestion. Overfeeding is quite common and is attended by many serious conditions. Some of the following maternal conditions contraindicate nursing: Depressed or deformed nipples; neuroses; epilepsy; hysterical disturbances; tuberculosis, syphilis or other constitutional diseases; chronic skin lesions; caries and chronic joint diseases; chronic rheumatism; cardiac or renal disease; puerperal fever; metrorrhagia; pronounced anemia; and abnormal milk when it disturbs infant digestion and when it cannot be corrected by changes in the maternal diet. Excess of proteids is usually more troublesome than any other abnormality.

Wet-nursing, mixed-feeding and artificial or bottle feeding are substitutes for mother's milk. Cow's milk reduced to make the casein one per cent. or less is a rational method. Meig's mixture is prepared as follows: Take one quart of good milk and set it aside for six hours, then pour off the top of the milk for feeding. Take three drachms of this top milk and three drachms of sugar-water and heat to 160° Fahrenheit. To this add six drachms of limewater and the mixture will be sufficient for three feedings. The sugar-water is prepared by adding eighteen grams of sugar of milk to a pint of hot water and cool (not in the ice box). Keep artificial nipples in a boric acid solution and boil nursing bottles before each feeding.

In this connection let us call attention to the fact that Pasturization of milk (raising it to 160° Fahrenheit) has been demonstrated to have decreased the infantile mortality to an enormous degree, and does not lessen the quality of cow's milk for infant feeding. This subject has in recent years received great attention and it would be well for every practitioner to thoroughly investigate its importance, and note its efficacy in lessening infantile gastro-intestinal troubles and deaths.

MULTIPLE PREGNANCY.

In the majority of cases multiple pregnancy occurs within the uterus but cases are reported where we have combined uterine and extrauterine gestation. Twin conception is more frequent in multipara, and in old primipara. According to G. VIET, in thirteen million births, twins occurred once in eighty-nine, triplets once in seven thousand nine hundred and ten, and quadruplets once in three hundred and seventy-one thousand one hundred and twenty-six labors. This compares favorably with other statistics on this subject. The etiology is unknown. Twins may arise (1) from a single ovum, the germ dividing; (2) from two separate ova developing in the same Graafian follicle; (3) from two ova extruding from different portions of the same ovary; and (4) from two ova each proceeding from a different ovary. Triplets arise from three distinct ova, or from one-egg twins and a single ovum, while quadruplets from double twins, or from twins and two single ova. The development of each embryo depends upon conditions. In twins the decidua vera is always single; the reflexa is single for one-egg-twins, and double when two ova attach at different portions of the uterine surface; the same is true relative to the chorion. The amnion is probably always primarily double. When two embryos occupy a common amniotic sac, the median wall separating them may undergo absorption. The placentæ are usually separate; but by reason of their close proximity, in single egg twins, there is usually fusion of their contiguous edges, with subsequent deep and superficial anastomoses of the blood-vessels. In plural pregnancy there is marked tendency to miscarriage and premature delivery, especially in cases of one-egg twins, quadruplets and quintuplets. In twin pregnancies both children may be expelled at the same labor, or at intervals ranging from eighteen to twenty-four hours. The offsprings are often of feeble vitality and one is quite likely to succumb shortly after delivery; monstrosities are more common; and the mothers are more prone to eclampsic attacks.

Multiple pregnancies may be determined by: (a) excessive size and tenderness of abdomen; (b) permanent uterine tension, but this may be present in hydramnios and concealed hemorrhage; (c) the abdominal tumor is usually broader; (d) the various portions of the fetuses may be detected by palpation; (e) the detection of two fetal heart beats at different locations; and (f) suprapubic edema is more or less a positive sign, but may occur in a simple pregnancy with hydramnios. Vaginal signs are: (*a*) Rapidly successive presentation of a head and a breech; (*b*) four extremities presenting; and (*c*) two amniotic sacs offering at the cervix.

The usual risk to mother and children is greater. When the first child is larger, the second birth is usually rapid, and is rarely delayed more than two hours. The cord of the first child should be ligated on the maternal as well as the fetal side, owing to the possible communication between the placental circulations. Both placentæ are usually expelled together after birth of second child. Special care is usually required to secure contraction of the overdistended uterus.

ABORTION AND PREMATURE LABOR.

Abortion is expulsion of the products of conception before the sixteenth week, and before the placenta is fully formed.

Miscarriage is expulsion of the fetus from the sixteenth to the twenty-eighth week.

Premature labor is delivery of the fetus after viability and is made to cover the twenty-eighth to the thirty-sixth or thirty-eighth week.

Abortion is artificial or spontaneous according as it is or is not evoked intentionally. Artificial abortion is "therapeutic" when done for justifiable cause; and "criminal" when for improper and immoral causes.

Hegar estimates that abortion takes place once in every eight pregnancies; however, statistics on this point are unreliable.

Abortion is most frequent at the third month, especially at menstrual dates. This is the period of the formation of the placenta; the chorionic villi on the periphery of the ovum undergo atrophy, while those situated in contact with the decidua serotina become hypertrophied.

From the paternal side the most frequent cause is syphilis. Tuberculosis, lead-poisoning, alcoholism, either extreme of age, et cetera, act as causative factors.

From the maternal side conditions tending to abortion are such as immature sexual organs, excessive indulgence in sexual intercourse, marked obesity, plethoric and nervous temperaments, emotional disturbances, acute infectious diseases, syphilis, tuberculosis, malarial poisoning, lead-poisoning, cardiac diseases, sea voyages, high altitudes, displacement of the uterus, chronic metritis and endometritis, previous lacerations and adhesions. Operations on the vulva are said to be more dangerous in this regard than major operations.

Abortions may be (1) normal or complete; (2) abnormal or incomplete. *Normal* occurs when the ovum is small; the decidua is separated in its whole extent and expelled with the ovum. In the *complete* variety the decidua separates over the lower uterine segment, and the ovum proper, covered with reflexa, is driven down into the cervical canal, but remains attached above by an apparent neck to the decidua of the upper segment. The rest of the decidua is then separated and the whole expelled. With the *abnormal* the fetus alone or the entire ovum with its chorion may be expelled through the reflexa, the decidua vera and reflexa being retained or expelled later. The *incomplete* type is that in which the ovum covered by reflexa is expelled, the polypoid neck being broken. The expelled portion is often mistaken for the entire ovum, but the decidua vera and secrotina are yet *in utero*.

The occurrence of hemorrhage in a pregnant woman is always suggestive of threatened or actual abortion, but is not always an absolute sign, as some women flow through the first months. Questions confronting the physician are: (1) Has the woman been pregnant? (2) has she aborted? and (3) is the abortion complete or incomplete? Ectopic gestation may be mistaken for abortion; but careful examination (under narcosis if necessary) will differentiate the two.

Abortion is rarely a menace to life, but may be the cause of various diseases of the uterus, especially of subinvolution, chronic metritis and endometritis, which may lead to invalidism. Septic infection from retained products is rare, but the danger comes from unclean instruments or hands that have been in the uterine cavity.

For prophylactic treatment ascertain the cause and treat that. Misplacements, acute and chronic inflammations of the genital tract, syphilis, tuberculosis, neuroses, should receive attention respectively.

Threatened abortion may be arrested so long as death of the ovum has not occurred; but, sometimes it is impossible to determine this. The patient should be put to bed in a cool, darkened room, and absolute rest and quite should prevail. A bland and cool diet is indicated; rectal suppositories of opium is the sheet anchor in these cases; and viburnum prunifolium is a sedative to the uterus and is a valuable adjunct to the opium treatment. Elevation of the patient's hips and cold cloths to the vulva are important in the control of profuse hemorrhage. When due to incarceration of the fundus below the promontory careful manouvering will usually give relief. If the symptoms cease after this treatment great caution should be exercised in permitting the patient to get up.

Actual abortion is " early" when before the tenth week, and " late" when after the tenth week.

In early abortion when there is slight homorrhage, no fever, and there is evidence that the ovum has entirely escaped, the treatment can be expectant for a day or so, effort being made to secure contraction of the uterus. If hemorrhage is profuse, or if scanty but of several days standing, curetage with a sharp instrument scientifically handled can be employed. Strict asepsis and antiseptic precautions should be enforced. In cases where the ovum and its membranes are retained anesthetize the patient, empty the uterus, pack the cervix and vagina with antiseptic gauze and wait for twenty-four or forty-eight hours and nature will usually complete the process. In late abortions the treatment is very similar.

After emptying the uterus the cavity should be thoroughly irrigated with some strong antiseptic solution, carbolic acid being preferred. If bichloride is used the cavity should afterwards be irrigated with sterilized water in order that too much of the mercury may not be absorbed. Any manifestation of sepsis should receive prompt attention.

In *missed abortion* it is seldom considered necessary to interfere manually.

In *missed labor* it is recommended to wait for a few weeks in hopes that the uterine contents may come away without interference; but, if we have positive evidence of death of the fetus, the contents of the uterus should be emptied, followed by an intrauterine douche of some mild antiseptic solution, and the administration of ergot.

With *premature labor* when the fetus is yet alive it should be averted unless marked albuminuria and symptoms of eclampsia are present. Opium is not well borne by the fetus and some other narcotic should be used.

DISEASES OF PREGNANCY.

For *anorexia* a suitable diet of light and easily digestible liquid foods should be ordered, with simple laxatives and gastric tonics. Acid eructations (pyrosis) with sense of burning extending from the throat to the epigastrium, may persist for some time after taking food, and should be treated symptomatically. Craving for unnatural articles of food (pica or malacia) does not yield to treatment, but the patient can be so watched that she does not ingest harmful substance.

Simple vomiting affects most pregnant women about the second or third month, but may continue throughout the whole period of gestation. Reflex irritation or abnormalities along the uterine tract are essential causes. Pregnant women bear this affection extremely well and in these cases the dietary treatment seems to be all that is necessary.

Pernicious or uncontrollable vomiting is rare but is serious and liable to jeopardize the woman's life. The symptoms are grave and should receive the prompt and careful attention of the physician in charge. The diet should be regulated according to the necessities of the individual. Nutrient enemata are administered in concentrated form, for a large quantity will excite peristalsis and the food will be expelled. The bowel should be washed out daily when feeding per rectum. The medical treatment should concern itself with the functional disturbances of the digestive tract; the reflex disorders be controlled by nerve sedatives. If the reflex disorder is due to a misplacement, tumors and other abnormalities, should receive conservative surgical treatment. As a last resort emptying the uterus may be considered and the curet and the dressing forceps are recommended. The uterine cavity should be thoroughly irrigated with normal salt solution or plain boiled water. The physician in charge should always have the support of competent counsel, as the matter involves great legal and moral responsibility.

Ptyalism occurs during the first half of gestation and only in exceptional cases is it troublesome. Its treatment is not very satisfactory.

Diarrhea is most apt to occur at the menstrual period, but is usually mild and amenable to treatment.

Constipation is quite common and may be a causative factor in abortion and digestive disorders. Simple laxatives, exercise and proper diet will usually correct it.

Palpitation is quite common and is probably due to sympathetic disturbances. It is noticed in hydramnios, in thin nervous and anemic persons, and seldom calls for active treatment.

Fainting is of frequent occurrence in this class of patients, and alcohol, spirits of ammonia, camphor and strychnine are useful medicaments.

Varices of the lower limbs, genitals and anal regions in the later months of gestation are not common, but are of no pathological importance.

Hemorrhoids are most frequently the result of pressure of the gravid uterus and of constipation. Regulate the bowels and delay operations until after labor.

Disorders of respiration are cough and dyspnea, probably both of reflex origin and in the latter months of pregnancy are due to pressure of the enlarged uterus upon the diaphragm. For cough sedatives and antispasmodics generally accomplish more than expectorants. In dyspnea the patient should wear loose clothing, avoid excitement and sleep with the head and shoulders elevated.

Albuminuria is most frequently the result of toxic conditions developed during gestation, and in most cases has a pathological significance. The causes mentioned are numerous, and the chemical and microscopical examinations will detect its presence. The presence of large quantities of albumen, especially if persistent, makes the prognosis grave. The treatment consists mainly in limiting the production of the disease poisons and promoting their eliminations. Milk diet, cathartics, diuretics, diaphoretics, mild alkaline waters, tonics and restoratives are medicated.

Disorders of the nervous system are numerous and varied and hygiene, iron, arsenic and quinine are especially valuable. The coal-tar products combined with some cardiac stimulant will relieve the pain. Local sources of irritation should be sought for and removed if possible. The mental character and disposition of the woman are changed. Various hysterical manifestations are observed and most neurotics are troubled with insomnia. Mental hygiene, cheerful surroundings, exercise and recreation are indispensable. Hypnotics should be given with caution.

ANOMALIES ARISING FROM ACCIDENT OR DISEASE.

Prolapse of the funis occurs once in about one hundred and seven cases, and is most frequent in breech or extremity presentations. The essential cause is failure of the presenting parts to completely and continuously occupy the lower uterine segment. Exciting causes are sudden escape of a large amount of amniotic fluid which sweeps a loop of the cord in front of the presenting part, and violent movements of the mother which throw the fetus upward giving the cord a chance to gravitate. It is necessary to differentiate from presenting membranes, presenting parts of the fetus, and from a loop of intestine. The prognosis principally concerns the child, but the woman is frequently subjected to risk of shock, hemorrhage and sepsis. The treatment is obvious when the fetus is yet viable, and little harm can come to the fetus so long as the fluids have not escaped. The position of the mother in the bed has great influence in preventing harm to the fetus. The replacement of the cord by the manual method is unsatisfactory, but by means of a piece of tape loosely encircling the cord and attached to a suitable catheter the prolapse can be corrected.

Inversion of the uterus may be partial, complete, or there may be a cup-shaped depression of the fundus. One etiologic factor of paramount importance is atony or paresis of the uterine muscles, and another common cause is too early traction on the cord to remove the placenta. The usual symptoms are shock, pain, hemorrhage, vesical and rectal tenesmus. Inversion is among the most formidable of complications and fortunately the condition is rare. It is sufficient to say that the treatment is prophylactic, reduction, or possibly amputation.

Rupture of the uterus is rare, occurring once in three or four thousand labors.

Placenta previa is met with in one out of every thousand cases of labor. The varieties are lateral, marginal, partial and complete. The causes are not definitely known. Tardy affixation of the ovum, atrophy of the decidua, relaxations and subinvolutions of the uterus, chronic endometritis, new growths and malformations of the uterus are believed to be factors. There are usually no symptoms in the early months, and the first indication may be a sudden hemorrhage of more or less severity. This may occur any time during gestation, but is rare before the seventh month. The hemorrhage may cease, or may be slight and continuous. During labor it is of grave importance, and must not be diagnosed from so-called "accidental hemorrhage" upon the physical signs. The maternal mortality is about thirty per cent. and the fetal about fifty per cent. If the fetus is dead the uterus should be emptied and always if the hemorrage is profuse or persistent. If there be question regarding the viability of the fetus the expectant treatment by absolute rest and quiet is justifiable, providing danger to the mother is not imminent. Labor may be induced by passing one or two bougies between the membranes and the uterine wall (Krause's method) when there is time, and the cervix may be dilated by use of the water bag or by the manual method. Hemorrhage may be controlled by the water bag, the vaginal tampon, by rupture of the membranes in order to let the fetus down to act as a plug, and cervical tamponage. Podalic version has yielded good results and partial or complete separation of the placenta have been advised. Precautions against shock and sepsis should be rigidly observed.

Hemorrhage from premature separation of a normal placenta is exceedingly rare, and two varieties are mentioned. In the "apparent" the blood finds its way between the membranes and decidua and escapes through the cervix. In the "concealed" there is no visible bleeding, the blood collecting in the uterus. In the former the prognosis for the mother is good, but not so favorable for the fetus. In the concealed the maternal mortality is more than fifty per cent. and for the infant about ninety per cent. The most common cause is a diseased decidua, as in the case of tubercular or syphilitic degenerations, and a morbid condition of the placenta itself. Nephritis, diabetes, extreme anemia, and the acute infectious diseases are mentioned as etiologic factors. The existence of hemorrhage is obvious; but in diagnosis, rupture of the uterus and placenta previa must be excluded. If the hemorrhage is light, the mother's condition good, and the fetus yet viable, the only treatment demanded is rest in bed, full doses of opium and absolute quiet. In either variety if hemorrhage is alarming the uterus must be emptied and the methods recommended have been previously described. Craniotomy, and possibly Caesarean section may be indicated. The after treatment is that for anemia and to secure uterine contractions. Elevating the foot of the bed and autotransfusion by bandaging the extremities are useful.

Postpartum hemorrhage is one of the most serious complications and to cope with it requires a broad knowledge and active measures. The principal cause is uterine inertia or atony of the uterine muscles, and most commonly seen in women who have borne many children in whom the abdominal walls are lax, or in old and debilitated primiparæ. Nephritis, extreme anemia and hemophilia are predisposing factors. Overdistension tends to uterine inertia. There may be no apparent flow if the placenta should come down and occlude the cervical canal. Relief should be prompt and effective. Every effort should be made to secure contraction of the uterine walls. Friction upon the uterus internally and externally, ergot hypodermically, pieces of ice, a lemon, very hot or cold douches, douches of vinegar, will all aid involution. Acetate of lead in drachm doses internally gives good result. Perchloride of iron might be injected into the uterine cavity but is dangerous, and should be used only as a last resort. If the circular artery of the cervix be lacerated, it should be deeply ligated. Elevation or bandaging of the lower extremities of the patient, transfusion, et cetera, will aid anemia. Tamponing the uterus with iodoform gauze will resist hemorrhage when all other measures have failed. If antiseptic precautions have been observed the tampon may safely be left in the uterus for twenty-four hours, and a renewal of the tampon is seldom necessary. During all these maneuvers asepsis should be oberved. The physician should watch his patient carefully for several days for any indications of sepsis and stand ready to give them his prompt attention. Hemorrhages six hours after delivery are spoken of as "secondary" and should not be mistaken for a profuse lochial discharge.

ECLAMPSIA

or puerperal convulsion is an acute, morbid condition during pregnancy or the puerperal state, which is characterized by a series of tonic and clonic convulsions, affecting the voluntary and then the involuntary muscles, accompanied by complete loss of consciousness and ending in coma or sleep. It occurs once in about every five hundred pregnancies, and is most frequent during the later months. The symptoms are classified into prodromal, invasion, convulsions and coma.

The *prodromal* stage is attended with headache, dizziness, epigastric pain, visceral disturbances and insomnia.

In the *stage of invasion* the eyes stare, lips twitch, pupils dilate widely. The muscles of the alæ of the nose and mouth jerk convulsively.

Convulsions begin in the muscles of the head, then extend to the neck, trunk and rarely to the extremities, the trunk being arched so that it rests on the head and feet. The arms are rigid, the hands closed with the thumbs in the palms. There is spasmodic respiration, jaws snap, tongue protrudes, froth flows from the mouth, followed by loss of sensation and unconsciousness. The tonic convulsions last from twenty to thirty seconds, followed by the clonic which lasts one or two minutes.

The *stage of coma* lasts about thirty minutes, during which consciousness and sensation slowly return. The first attack may be followed by others; but, if recovery is to take place, the woman awakes much refreshed after the sleep of the first attack. If convulsions are uncontrollable, death ensues from pulmonary edema, cerebral congestion, hemorrhage or exhaustion.

The *etiology* seems to yet be in doubt. Many theories are advanced such as uremia, albuminuria, fermentation in the placenta causing intoxication, but the most plausible is that of toxemia. The predisposing causes are kidney lesions, retention of the urine, hydramnios, small pelvis, large fetus or fetal head. Very young or very old primiparæ are particularly prone to attacks. The exciting causes are painful uterine contractions, prolonged and exhausting efforts at expulsion, profound emotion.

A correct *diagnosis* is exceedingly important. The mere occurrence of convulsions warrant diagnosis of eclampsia, but it may be mistaken for epilepsy, hysteria, apoplexy or meningitis.

The *prognosis* is favorable when the attacks are infrequent and mild, when the child dies, when the patient is conscious during the intervals, when there is a small amount of albumen and the temperature drops, and when the attack occurs late in labor or during the puerperium. Under other conditions the maternal mortality is about thirty per cent. and that of the child about fifty per cent.

The *preventive treatment* recommended is to reduce the amount of nitrogenous food; limit the production and absorption of toxic materials in the intestines and tissues of the body, and assist elimination by improving the action of the bowels, kidneys, liver, skin and the lungs; and, if necessary, remove the source of the fetal metabolism and of peripheral irritation in the uterus by emptying that organ.

The *curative treatment* is in doubt, because the etiology and pathology remain obscure. Many subjects recover no matter what treatment; many die in spite of all treatment and others do well without any attention. However, this does not argue that the patient should be neglected. For the control of the convulsions chloroform, veratrum viride and chloral are preferable in the order named. Veratrum viride reduces the pulse-rate, and convulsions are practically unknown with a pulse of sixty or under; it reduces temperature; relaxes and renders more yielding the cervical ring; causes prompt diaphoresis and diuresis, and thus aids in the elimination of the unknown poisons. Vomiting and collapse are controlled by whiskey and morphine. As a last resort for controlling the convulsions the uterus should be emptied under deep anesthesia, and four methods are recommended: (1) Caesarean section; (2) mechanical dilatation of the cervix; (3) deep cervical incisions; and (4) combined mechanical dilatation and deep cervical incisions. Of these methods the mechanical dilatation is the most popular and seems to be attended with less danger and better results. A rigid cervix should receive preliminary treatment, by use of a cervical dilator of gauze or a hydrostatic bag, after which rapid dilatation is a comparatively safe operation. The bimanual method is preferred to other digital and instrumental means, because (1) the membranes are preserved throughout the operation or until full dilatation is obtained; (2) there is no interference with the original presentation or position; (3) the sense of touch of the operator's fingers is unimpaired; (4) there is no constriction of the operator's hands; (5) the amount of force upon the external ring can be better estimated, and hence less likelihood of lacerations; (6) in placenta previa there is less preliminary separation of the placenta; (7) by no other method with which we are acquainted can not only complete dilatation, but complete paralysis of the parturient os, be so quickly and safely obtained.

This ends the review of the year's work in obstetrics; and during the whole time of preparation I have endeavored to discover wherein the instruction we have received could be improved upon. So far as I am concerned I feel that I have received a good fundamental understanding of this most important and interesting subject, and my only hope is that during the senior year we may be so fortunate as to make comparatively as much progress in this branch of medicine.

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